

In This Issue—How Service Helped Win Sales Prize

MOTOR AGE

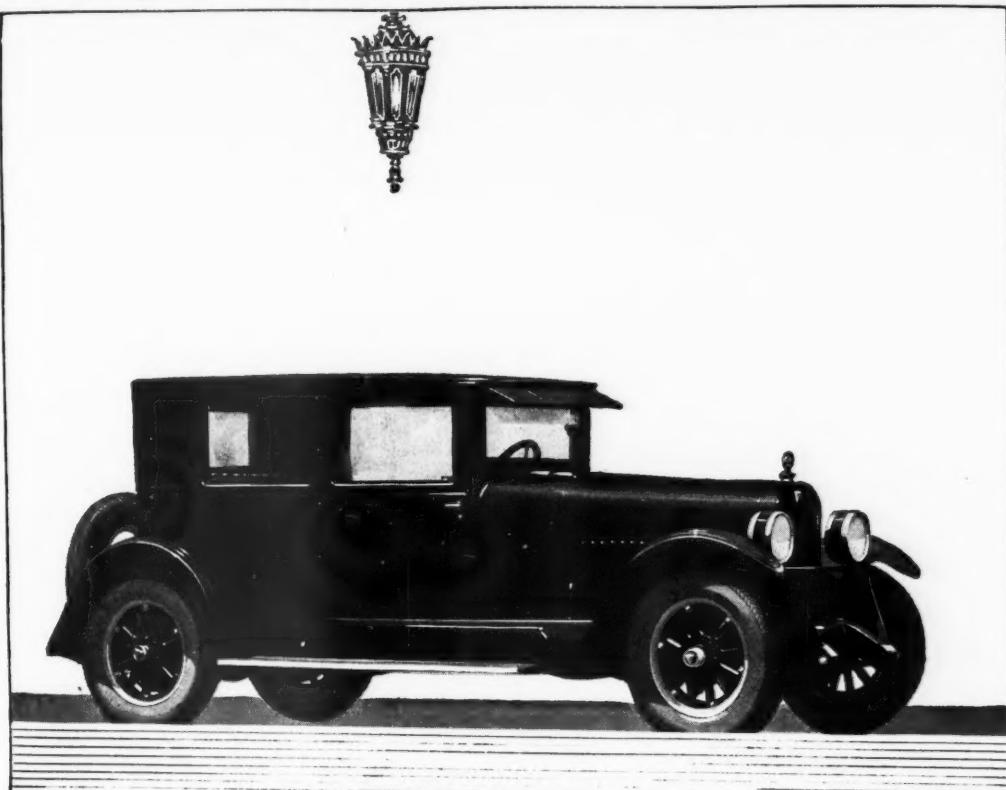
Vol. XLVI
Number 13

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CHICAGO, SEPTEMBER 25, 1924

Thirty-five Cents a Copy
Three Dollars a Year

HUDSON-ESSEX

Largest 6-Cylinder Car Sales in the World



First to Build 100,000 Sixes in 1924

The Coach is
Exclusive to
Hudson-Essex

Genuine Balloon Tires
Standard Equipment

Hudson Super-Six Prices
THE COACH - - - - - \$1500
7-Passenger Phaeton - - - - - 1500
4-Passenger Speedster - - - - - 1400
7-Passenger Sedan - - - - - 2250
5-Passenger Sedan - - - - - 2150

Essex Six Prices
THE COACH - - - - - \$1000
The Touring - - - - - 900
Freight and Tax Extra

Hudson and Essex have outsold all rivals for 1924.

By August 15, the 100,000 mark was passed. No other maker of Sixes approached that record.

With most builders far behind their 1923 production, Hudson-Essex already has passed its high mark of 88,000 cars.

Essex "Six" Practically Doubles Sales on Old Essex "Four"

The success of the Essex "Six" has been sensational. Sales almost double the greatest year for the old Essex "Four."

Of course dealers have made money. Hudson-Essex dealers have never had a bad year. Now they unquestionably sell the most wanted 6-cylinder cars in the world.

Seventy-five percent of their business is in the coach. That is exclusive to Hudson and Essex. It is the car everyone wants.

Investigate the remarkable dealer advantages the Hudson-Essex line offers. It is the best and most profitable dealer opportunity the motor market affords.

HUDSON MOTOR CAR COMPANY, DETROIT, MICHIGAN



New!

—Water Pump Packing Nut Wrenches *Made of Chrome-Vanadium*

Here at last is the first complete line of Water Pump Packing Nut Wrenches. This type of wrench requires a very wide but thin jaw and a short handle. It cannot be made of ordinary carbon steel and have the strength required.

Heat treated drop forgings of that super alloy steel *Chrome-Vanadium* have made possible the one thin but strong wrench for this special purpose.

A Bonney **CV** Water Pump Packing Nut Wrench fits perfectly, with a positive grip. It has a 30 deg. angle opening and a short handle to allow clearance in a narrow space.

There is a size to fit practically every make of car.

Every garage and repairshop can save time and damage by owning a complete set of these special wrenches.

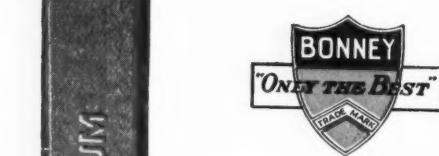
Try These Three Popular Sizes

No. 1240 fits Studebaker Light Six, Jewett, Oldsmobile, Packard 8, trade price \$1.35.
No. 1242 fits Chevrolet, Dodge, Paige 6-55, Jordan, Columbia Light 6, Anderson 41, Auburn 6-43, Davis 71, Elcar 6-50, Westcott 48, trade price \$1.65.
No. 1246 fits Chandler, Anderson 50, Case, Columbia Big 6, Davis 81, Elcar 6-60, Moon, Paige 6-66, Westcott 44, trade price \$1.65.
Write for catalog No. 24 which illustrates and describes the complete line of Bonney Water Pump and other special type wrenches.

Made in U. S. A. by

BONNEY FORGE & TOOL WORKS
Allentown, Pa.

Also makers of **CV** Engineer and Tappet Wrenches, Carbon Steel Drop-forged Wrenches, Stillson Wrenches, Vises, Pliers and Drop-forgings.



Bonney
"Chrome-
Vanadium"
Service Tools

Bonney **CV** Special Service Wrenches are made in many models and sizes to cover a big range of shop requirements both regular and unusual. Write for our catalog No. 24 for particulars and prices.

CV is a
Bonney Trade
Mark regis-
tered in the
U. S. Patent
Office.

—

BONNEY
Chrome-
Vanadium
WRENCHES





Keeping step with the Industry —

What does the progressiveness of Walden-Worcester mean to the Walden-Worcester Dealer?

The sixth of a series of advertisements giving reasons why it pays to be a Walden-Worcester Dealer.

The progressiveness of the maker, behind the line of socket wrenches you sell, counts big in effecting a demand. A Walden-Worcester dealer has a progressive company behind the line of socket wrenches he offers the trade—and the trade knows Walden-Worcester thru achievement in socket wrench design and manufacture.

Walden-Worcester Engineering Department has made a special study of socket wrenches as required for automotive work. Keeping pace with the demands of the industry, they have produced wrenches for the places where the hammer and cold chisel were formerly the only solution.

Stock a line of socket wrenches that the trade specifies. Just around the corner everywhere, there's a Walden-Worcester Jobber—buy from him.

WALDEN-WORCESTER
INCORPORATED
GENERAL OFFICES AND FACTORY
WORCESTER, MASS.

The trade knows.

WALDEN-WORCESTER
The original and largest manufacturer of Wire Handle Socket Wrenches in the World.

THE NAME "BENDIX" IS ON EVERY GENUINE PART



CAUTION: In our Bendix Drive advertisements, appearing regularly each month in *The Saturday Evening Post* and *The Literary Digest*, the public is being cautioned to buy none but genuine parts and to look for the name "Bendix" on each part.

This Label Protects You

Genuine Springs for Bendix Drive have a red and yellow label, which assures you highest quality materials, skilled workmanship and maximum service.

It pays to sell none but
GENUINE PARTS
FOR
BENDIX
DRIVE

ECLIPSE MACHINE CO., ELMIRA, NEW YORK

Eclipse Machine Company, Ltd - Walkerville, Ontario



MOTOR AGE

Reg. U. S. Pat. Office

Vol. XLVI

No. 13

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Subscriptions accepted only from the Automotive Trade
 Entered as Second Class Matter Sept. 19, 1899, at the Post Office
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"**T**HIS is the first year we have handled Goodrich Silvertown Cords. We have found them easy to sell, we have increased our business and we have added many new customers among the better class of automobile owners who demand quality products.

We wish to compliment you on your prompt service and courteous treatment."

MAY AUTO SUPPLY COMPANY
 Milwaukee, Wisc.

**BUILD WITH
 GOODRICH for
 PERMANENCY**

THE B. F. GOODRICH RUBBER COMPANY
 Akron, Ohio
 ESTABLISHED 1870

**Goodrich
 TIRES**

"*Best in the Long Run*"

**Top protection
assured**

TOURISTS who motor over long stretches of Nature's wonderlands must be assured that a reliable, *travel-proof* top forms part of their car's equipment.

Top makers, building tops that really protect and always withstand the trials of travel, use, as many automobile manufacturers do, the famous

CHASE
DREDNAUT
Motor
Topping
 "DEFIES TIME AND THE ELEMENTS"

L. C. CHASE & CO., BOSTON
 NEW YORK DETROIT CHICAGO
 SAN FRANCISCO
Leaders in Manufacturing since 1847

In the words of the buyers!

The success of the NEW STUDEBAKER CARS is told

COUNTLESS thousands of people in every part of this country—from every state in the Union and from every walk in life—are talking about "THE NEW STUDEBAKERS!"

They are thronging the dealers' showrooms, they are writing letters of congratulation to Studebaker—even wiring messages of enthusiastic praise!

And these countless thousands of people are all automobile buyers—many of them are immediate buyers, some will be buyers next spring, and some of them won't be buyers for years. But they are *all* "potential prospects."

And this is what they say—we shall use their own words, picked at random from hundreds of messages:

"The new DUPLEX BODY is the greatest thing since the self-starter and electric lights."

"Your new STANDARD SIX proves what I have said for years: 'The time is coming when you can buy the finest automobile for about \$1,000.00.' But I didn't know it was going to be as fine as your new STANDARD."

"I'm glad to see you come out with a STANDARD SIX that gives us eleven or twelve hundred dollar fellows a square deal—real balloon tires, honest to goodness fine leather, good cushions, plenty of room, plenty of engine, an eyeful of good looks; lamps, fenders, fittings, finish and all the trimmings like the high priced fellows—but when you throw in that wonderful new DUPLEX STEEL BODY at an open car

price I kind of feel I took advantage of you when I crowded the salesman to get me one quick!"

"The greatest line of cars ever offered the public."

"I have been driving \$4,000 cars—I bought a new BIG SIX DUPLEX-PHAETON on its looks, equipment, history and reputation."

"The performance of your NEW STUDEBAKERS is a revelation to me—for silence, speed, lack of vibration and power, I never drove such a wonderful car."

"If Studebaker can do it, why can't the other fellow!"

"You have made history all right; but it's going to be a sad one for some of these birds that haven't!"

There are 15 completely new body styles and three chassis—the Studebaker dealer has three distinct market opportunities.

And for each of three chassis there is the new DUPLEX BODY. For each of two chassis there is the new three passenger DUPLEX-ROADSTER BODY.

For all three chassis there is the wonderful line of new closed bodies all built complete by Studebaker at a saving which makes Studebaker prices a national sensation in value!

THERE ARE A FEW OPEN TERRITORIES AVAILABLE WHICH MIGHT PROVE YOUR OPPORTUNITY.



STANDARD SIX		SPECIAL SIX		BIG SIX	
113-in. W. B.	50 H. P.	120-in. W. B.	65 H. P.	127-in. W. B.	75 H. P.
5-Pass. Duplex-Phaeton	\$1145	5-Pass. Duplex-Phaeton	\$1495	7-Pass. Duplex-Phaeton	\$1875
3-Pass. Duplex-Roadster	1125	3-Pass. Duplex-Roadster	1450	5-Pass. Coupe	2650
3-Pass. Coupe-Roadster	1395	4-Pass. Victoria	2050	7-Pass. Sedan	2785
5-Pass. Coupe	1495	5-Pass. Sedan	2150	7-Pass. Berline	2860
5-Pass. Sedan	1595	5-Pass. Berline	2225		
5-Pass. Berline	1650				



Studebaker Hydraulic 4-Wheel Brakes, optional equipment.

On all Standard Six models, with 4 disc wheels and spare rim, \$60.00 extra. On all Special Six and Big Six models with 5 disc wheels, \$75.00 extra.
(All prices f. o. b. factories, and subject to change without notice.)

THE STUDEBAKER CORPORATION OF AMERICA, South Bend, Indiana

T H I S I S A S T U D E B A K E R Y E A R

NASH

Nash Leads the World in Motor Car Value

*This is the New
Advanced Six Roadster*



*This Model Proving Big Sales Attraction
for Nash Dealers*

Everywhere this new Nash Advanced Six Roadster is establishing itself as a great drawing card.

There's no more picturesque car on the market and the demand for it is mounting steadily.

Coupled with its beauty, brilliant performance, practical features like the two large luggage compartments, and its economy of operation is the further fact that at its price of \$1375 f.o.b. factory it is a compelling value.

It offers four-wheel brakes of special Nash design; full balloon tires; five disc wheels as standard equipment; new force-feed oiling system; and a specially engineered Nash steering mechanism designed for use with the Nash brake and balloon tire equipment.

The long, sweeping rear deck, graced with

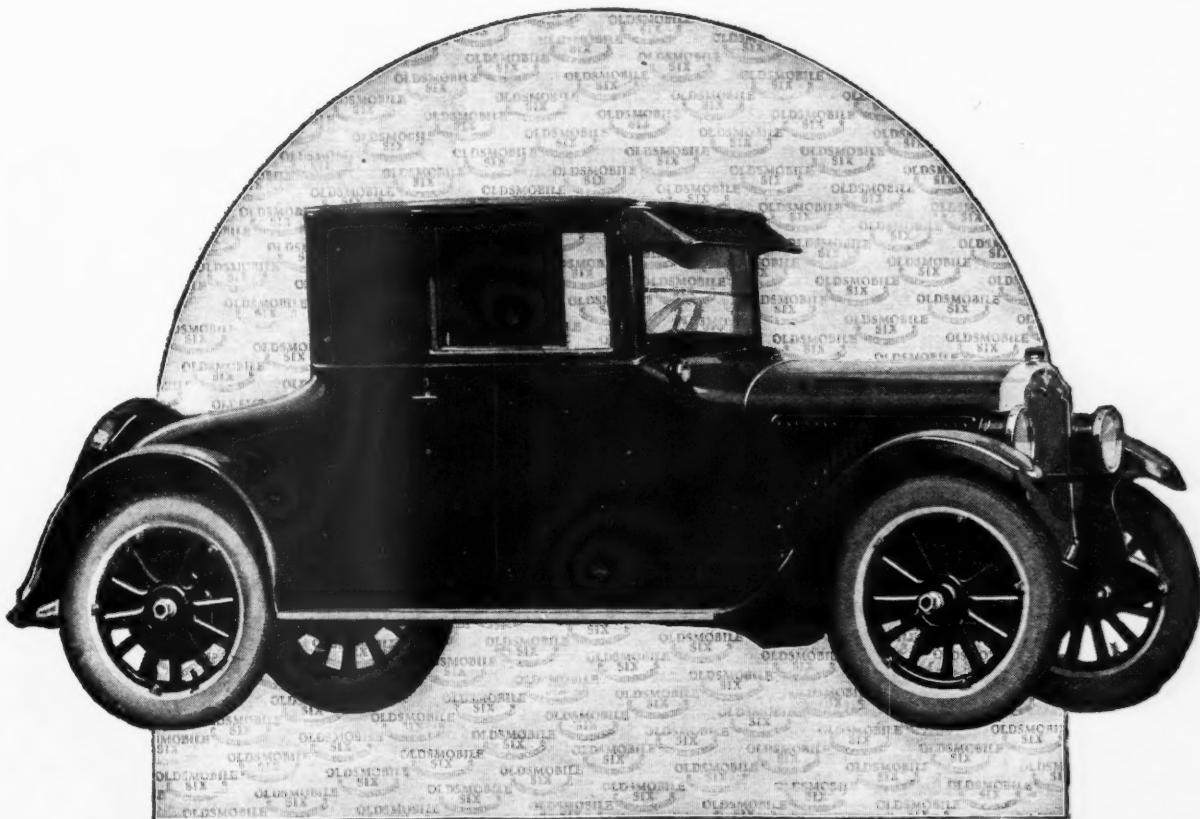
nickled guard bars, is of the classically symmetrical Nash dreadnaught design. Windshield is of one-piece construction, doors are broad, and there are a score of added advantages.

Supporting the Roadster are eight other distinctive cars included in the Advanced Six and Special Six Series. And they're enabling Nash dealers to set the sales pace all over the country. Drop us a wire today. There's some special territory information we'd like to send you.

Prices and models are as follows: SPECIAL SIX Series: 5-Pass. Touring, \$1095; Roadster, \$1095; 5-Pass. Sedan, \$1295; f. o. b. Milwaukee. ADVANCED SIX Series: 5-Pass. Touring, \$1375; 7-Pass. Touring, \$1525; Roadster, \$1375; 5-Pass. Sedan, \$1695; 4-Door Coupe, \$2190; 7-Pass. Sedan, \$2290; f. o. b. Kenosha.

THE NASH MOTORS COMPANY, KENOSHA, WISCONSIN

(592)



A Proved Car - Improved!

Thousands of owners have proved it! Proved it on every kind of road and in every kind of climate—proved its power, its economy, its rugged endurance, its incomparable value. Q Naturally, we've retained that stalwart chassis because its basic design is right. We've simply taken that proved car—and IMPROVED it! We've refined it, added a newer grace—beautified it with enduring DUCO Satin finish. Q Cowl lights—a larger steering wheel—a new and more distinctive radiator—these things and many others have worked a wondrous improvement in its beauty and utility.

Dealers—If the Oldsmobile franchise in your territory is open—get in touch with us at once.

2 pass. Coupe \$1045 Roadster \$875, Touring Car \$875, Sport Roadster \$985, Sport Touring \$1015, Coach \$1065, Coupe \$1175, Sedan \$1250, DeLuxe Sedan \$1350. The G. M. A. C. extended payment plan makes buying easy. All prices f. o. b. Lansing. Tax and spare tire additional

OLDS MOTOR WORKS, LANSING, MICHIGAN
OLDS MOTOR WORKS OF CANADA, LTD., OSHAWA, ONTARIO

The Refined

OLDSMOBILE
SIX
PRODUCT OF GENERAL MOTORS

The Good **MAXWELL**

Sounder, More Enduring

The good Maxwell and the famous Chrysler Six so well meet the automobile needs and demands of a great and growing public that Maxwell-Chrysler dealers have very definite profit assurance, as well as the elements of permanency and stability.

You see this proved, particularly in the caliber of the men who are being attracted to Maxwell-Chrysler.

Such men for example as R. H. Collins, Guy O. Simons, Walter F. Wright, L. E. Frey are Maxwell-Chrysler distributors. Just recently G. O. Washburn disposed of his interests in the company distributing a competing car in Seattle and associated himself with the William T. Patten Co., Seattle, Maxwell-Chrysler distributors.

Not only are distributors and dealers attracted, but they, in turn, are able to interest keen, able men and hold them. They are enabled to plan their operations on a sounder more enduring basis—because Maxwell-Chrysler has the value, the stability, the public confidence, and the organization spirit to warrant

their investment in time and money. In addition to the outstanding value of the good Maxwell, and the sensational success of the Chrysler Six, the

Maxwell-Chrysler organization is definitely committed to the policy that its dealers must make money. There is nothing static or ineffective about that policy, for the reason that it is administered by men who have themselves been dealers and who know and understand the dealers' difficulties and opportunities.



Then there is the Maxwell Guaranteed Flat Rate Service System—which enables dealers to render real service at a low price and still manage to make it self-supporting and even profitable; so that you have in Maxwell-Chrysler the factors and elements which are steadily becoming more important to dealers.

If you are interested, if you seek more than is offered by the average automobile franchise, then you are invited to write or wire for details, which will be promptly supplied.

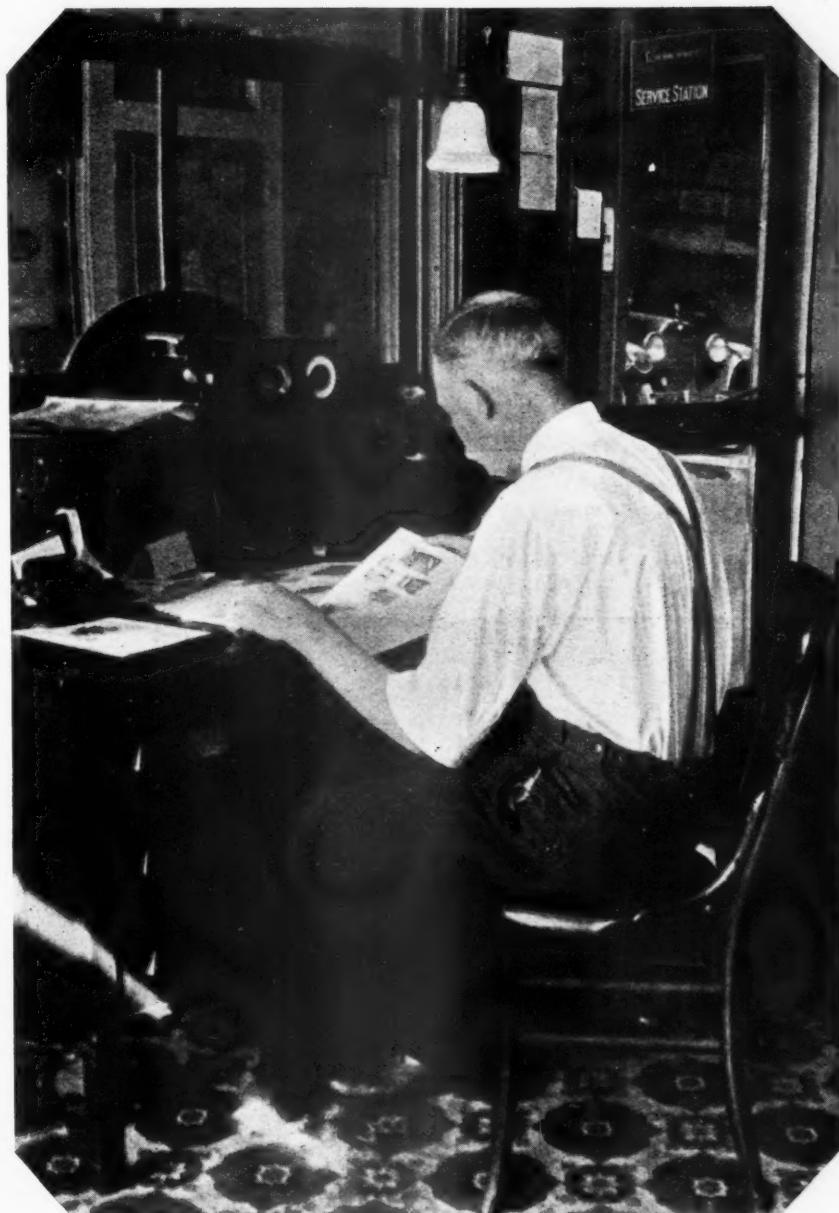
All Maxwell and Chrysler dealers are in position to extend the convenience of time-payments, on a plan that is attractive to the buyer.

MAXWELL MOTOR SALES CORPORATION, DETROIT, MICHIGAN
CHRYSLER MOTOR CORPORATION, DETROIT, MICHIGAN
MAXWELL-CHRYSLER MOTOR COMPANY OF CANADA, LTD. WINDSOR, ONT.

The Chrysler Six

MOTOR AGE

How Service Helped Win \$100 Sales Prize



Mr. Johnson believes in keeping posted on the refinements incorporated in the new models

A. S. Johnson Motor Co. Finds That Reputation for Good Maintenance Work Is Often Deciding Factor in Competition for Car Sales

A FEW weeks ago a brief news paragraph carried the announcement that in a sales contest among Nash dealers the factory had awarded the prize of \$100 and a large electric sign to the A. S. Johnson Motor Co. of Streator, Ill. Here is the story of how Mr. Johnson built up his successful business.

By A. H. PACKER

"OUR cars were faster than theirs," said the alibi artist of the losing team. "The only trouble we had was caused by breakage of the bolts that held the gas tanks. You see, we used ordinary cap screws made out of machine screw stock, and the other fellows with nickle steel had the advantage of us."

Hindthought. Accurate, perhaps, but not so good as forethought, and of no consequence in winning the race.

In the race today between dealers, is not the same thing going on? There are the alibi artists with ordinary machine screw stock in their service stations, mediocre men, poor equipment, high prices and poor work and methods, wondering where the break is and why their salesmen do not bring in more orders.

And then there are men like A. S. Johnson of Streator, Ill., who for years have seen that service would be the making or breaking of the automobile dealer and have built accordingly, with nickle



A. S. Johnson Motor Co., Streator, Ill.

steel in their service departments, men who know and tools that make the work worth while.

Some twelve years ago, Mr. Johnson was a farmer with no intention of being anything else, but because motor cars were invading the country as well as the city and because someone was needed as the agent of one of the well known cars, Johnson took the agency. And then because a valve would stick or ignition points pit up, even as it is today, and because sticking valves and pitting points turn satisfied car owners into potential enemies—even as it is today, Mr. Johnson decided that a service station was a crying need.

That was one reason that Mr. Johnson backed a certain man in a garage venture in Streator and when the man fell down on the job, Mr. Johnson bade his farm good-by, took over the garage and became an automobile dealer.

Doesn't Promise Too Much

"And service," said Mr. Johnson, "doesn't mean giving away a lot of time and parts. Of course, I live up to every promise I make, but I watch out that I do not make too many. That's one trick that some of the dealers have yet to learn. Either they get customers down on them or they promise too much and either have to break their promises or lose money living up to them. Treating folks right and getting their confidence is the biggest part of the battle. When that has been done you don't need many salesmen.

"When I took on Nash cars, for example, folks around here said I was crazy, for at that time the car was little known in these parts and everyone said it wouldn't sell. In fact, they seemed to be right about it at first, but I took my time and didn't try to do much selling at first, just pushed the shop work on the cars we had handled before, making friends and trying out the Nash until I was satisfied with it myself, then I knew I could satisfy the

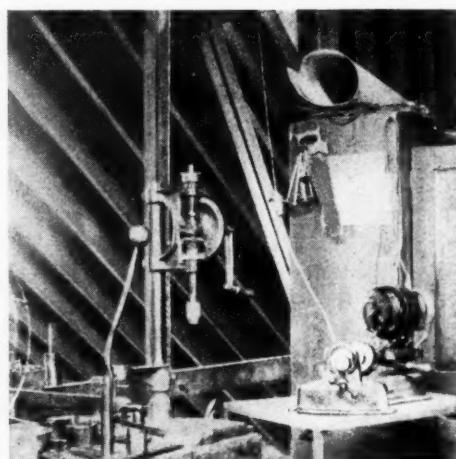
was talking about, so when it came to motor cars I followed the same method. And when I was thoroughly convinced myself I found that this line of reasoning worked with motor cars as with anything else.

"You'll be surprised when I tell you that I have no sales force at all and only one man who drives cars around for me, demonstrating. I find that people make up their minds themselves about the car they wish to buy and the salesman who figures he is doing all the work is really in most cases cashing in on the reputation of the car, the factory or the dealer, or all combined. I really feel that some dealers go to extremes in the matter of salesmen, and that they drive away sales as well as make them. Before I started to sell cars, I was having a salesman call on me until I wished I would never see him or his car again. When I find a man busy or feel that he is just prospecting around, I respect his desire to be let alone, answer any questions he may ask and let it go at that. It's something like fishing, when they are not much interested you have to let them fool around with the bait and run with it. If you jerk too soon you just scare them away.

Dealer's Reputation Deciding Factor

"In the matter of selecting a car, the prospect has already made up his mind as to the price he can pay before the car dealer meets him. Then he is considering the reputation of the car, the factory and the dealer as well as the dealer's ability to render service and in a community such as ours, the dealer's service facilities and reputation for reliability are so well known that it is often the deciding factor."

The service department which Mr. Johnson has built up does its work on the balcony at the back of the shop, this balcony showing in one of the illustrations. Here there is room for about five or six cars, placed side by side and facing the front of the shop. Access to



Three pieces of equipment that make old valves work like new

others. I never was a hand to talk up something unless I really knew what I



No, it is not the Coliseum in Chicago—just Johnson's Garage in Streator with service balcony in the rear

the balcony is by means of stairs and electric elevator, the latter being used to take the cars up. This was once operated by hand power, but Mr. Johnson was not long in deciding to spend some money to expedite getting cars up and down and also to eliminate the danger of the hand operated device, which sometimes precipitated its load with more suddenness than care to the floor below.

At the front of this balcony is one long work bench while at the back and sides are the heavy shop tools such as lathe, heavy duty press and drill press. Here then, men may work in peace, with equipment right for each job and with just enough isolation from the main portion of the garage so that they are not continually bothered by inquisitive car owners, snooping around to see how things are coming and how long the job is taking.

Experienced Men Employed

The men in the shop are experienced on overhead valve type engines, so in addition to service on Nash cars, Mr. Johnson also gives service on Buick, although no attempt is made to handle other makes, work of this kind being turned down whenever possible. Specializing in this way the men can do better



A skylight over the balcony makes hard jobs easy

work, make more for their employer and give the public more for their money, he says.

The specialization in service on two makes of cars is reflected in the shop equipment shown in one of the illustrations. This equipment handles valve maintenance, the unit at the right refacing the valves by grinding. The chuck rotates the valve slowly while the high speed wheel trues up the contact surface of the valve. At the left in the same illustration is a tool which the shop foreman had made up for quickly compressing the valve spring to remove Buick valves from their cages. The operating



The washrack where cars that run right are made to look right

handle is an old gear shift lever adapted for the purpose. In the center of the same picture is a conventional breast drill mounted for the purpose of grinding the seats in valve cages. With this device the valve is chucked by its stem, while the cage is held with the left hand, the right being used to operate the handle of the drill.

Good Work Advertises Shop

While equipment needed for each job is available, still the need of selling service as well as cars is not lost sight of and this applies to the washing of a car as well as to putting its mechanical parts in good condition. Under the balcony is the wash rack, well lighted from an adjacent doorway, and by means of overhead lights, and many a car leaving the Johnson station is, by its appearance as well as its operation, a rolling advertisement of the shop it has visited.

PERSONAL SERVICE GARNERS DOLLARS

Because so many customers inquired for things they did not carry in stock or even touch for that matter, Oscar and Walter Messmer, proprietors of the Park Battery Service, Hartford, Conn., concluded they were letting some good business pass them by. On numerous occasions there were inquiries for tires. Now the firm stocks tires and if a battery customer wants a different make than is carried why the Messmers get it for him.

Numerous Ford owners were interested in carburetors. Now the Messmers serve them. There were also requests for oil. Now they are filled.

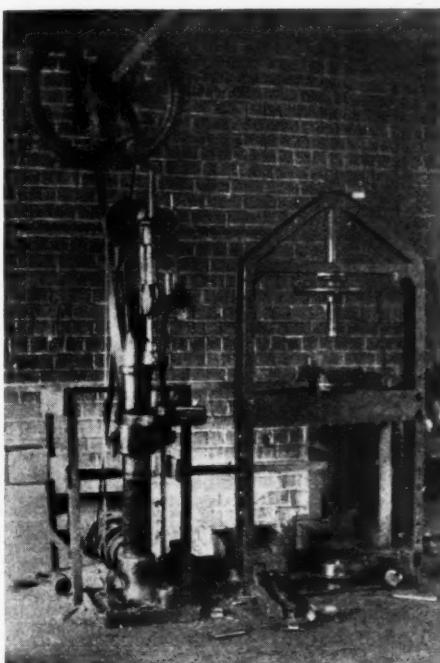
Radio is quite the thing. What is the best battery for radio? How long should a radio battery last? Is a wet B battery better than a dry B battery? Is a neutradyne the best kind of a set or is a reflex the thing? Now the Messmers are able to answer all these questions and to offer their trade anything they want.

The firm went into radio nearly two years ago and tired of it finally deciding to devote all time to battery service. Yet the fact came home on numerous occasions that good business was taken elsewhere. Here is one vital point. The

firm knows every customer and any individual customer would rather buy of the Messmers and wait for them to get what was wanted than go elsewhere. The entire business has been developed on personal service. A man may drop in the morning for instance and ask for a B battery that is not in stock. He is perfectly willing to come that afternoon or the next day and get what he is after even though a five minute drive would put him in the business zone proper where there would be a dozen places to trade. Its the much discussed personal touch and the firm is now profiting by it.

CAPITALIZE AT \$50,000

WATERLOO, Ia., Sept. 22.—The Osbun Motor Corporation has been incorporated here with \$50,000 capital stock to sell automobiles, tractors, trucks and accessories. B. M. Osbun is president and treasurer; A. C. Neilson, vice-president.



Heavy equipment, too, adds to the completeness of Johnson's shop

A New Business But Old Principles

The Long Established Rules of Successful Merchandising Must Be Applied to the Automotive Business If It Is to Be Profitable

By SAM SHELTON
Profits vs. Volume—No. 2

THE day of the birth of the automotive business cannot be stated. We know that 25 years ago MOTOR AGE had just been established as the first of the great business papers that have grown up with this industry. Automobiles had been in use in the United States for several years. But there were few of them and they were crude affairs, each one the product of a patient mechanical genius who labored for love of accomplishment. There was no standardization and no production on a commercial scale as we know it now. Most automobiles that were sold were first ordered and then constructed and delivered.

Early in 1900 the first national automobile shows were held in Chicago and New York. By that time the production of automobiles was becoming well enough established that there were enough responsible firms in the business to successfully promote these exhibitions. In January, 1925, the twenty-fifth anniversary of the national shows will be commemorated by the holding of the Silver Jubilee Shows in New York and Chicago. Because of importance of these shows and the trade press in the development of the automotive industry it may well be said that the industry had its beginning as a business for the widespread sale of transportation 25 years ago when the first automotive business papers were founded and when the national shows were inaugurated.

Immense Growth in Short Time

Twenty-five years is not a long time in the development of a business. It is not even a generation in the span of human life. Yet in that brief period this new business has grown to enormous proportions, chiefly because the automotive vehicle represented so great a forward step in individual transportation that the public demand for it was insatiable. In the early days automobiles were sold chiefly at shows, fairs and on the streets by agents who went about demonstrating them to wondering crowds. Of course these agents had to be extremely skilled in the operation and repair of the particular car they were undertaking to dispose of and if they could keep it running until the cash was handed over to pay for it they were in great demand as salesmen.

Still the people bought freely of the impractical and experimental cars that were turned out from dozens of little factories and machine shops scattered about the country. This was the encouragement which later caused some of those little shops to develop into the immense plants covering hundreds of acres that are engaged in the manufacturing of the modern motor vehicle.

Necessarily the automotive vehicle was a machine of comparatively high price. Its construction represented a large ex-

the dealings of the manufacturer with his sales agents.

Just as a great many of the individuals or firms who early engaged in the manufacture of automobiles had been previously in the business of manufacturing bicycles, so it followed that some of the first retailers of motor vehicles were persons who had been engaged in the sale and repair of bicycles. The early history of the industry records many instances of bicycle dealers taking over the retail distribution of automobiles. It is not difficult to understand why men interested in the bicycle should transfer their interest to the newer form of transportation which in its beginning took many lessons from the highly perfected two-wheeled mount that was so popular in that day.

Mail Order Houses Enter Field

But bicycle men were not the only ones who became interested in the retailing of automotive vehicles. Many others visioned a great future industry and looked for an opportunity to share in the profits they believed would follow it. The great retail store of Wanamaker undertook at one time to sell automobiles. Some vehicles were stocked and the opening display attracted great crowds. The experiment was not a success.

The great mail order houses also entered the field for the sale of motor cars. Their catalogs contained pages of pictures and descriptions and thus they contributed generously their share in the introduction of the automobile to the American people. Magazines and newspapers also carried the advertisements of manufacturers who were seeking to sell their product directly to the consumer. The wagon and carriage dealers also entered early into the business, just as many makers of horse-drawn vehicles also had pioneered in motor car manufacturing.

It was the problem of maintenance which very early shattered some of the preconceived ideas of merchandising motor vehicles. It was one thing to sell a vehicle and another thing to keep it in condition so that it would continue to operate and satisfy the owner. The bicycle man and the carriage man were about the only ones of the then existing distribution agencies that had the me-

A DEALER'S CODE OF ETHICS

THE code of ethics adopted by the Chicago Automobile Trade Association is as follows:

We, the members of the Chicago Automobile Trade Association, recognizing in the automotive industry a new field for public service, as well as for personal endeavor, propose that its foundation shall rest on sincerity, fraternity and fair dealing.

We, therefore, declare our purpose, in placing before the public the merits of our goods, to avoid belittling our competitors or disparaging their products.

We acknowledge our moral responsibility as heads of our respective organizations for the trade tactics of our employes, and our duty to lead the way to right and honest transaction of our affairs.

We pledge ourselves to test by these principles the daily conduct of our business.

penditure of labor and money and the first manufacturers were none too well financed. The \$600 or \$700 that was asked for a moderately priced vehicle of that day represented a great deal more than does the same price asked today for a car that is infinitely better and everywhere available.

The early manufacturers of automobiles sold their products for cash on delivery. If they didn't get the cash before the new owner had an opportunity to drive the machine they had little chance to get it. But they needed the money to keep their plants going and so it came about that the sight draft with bill of lading became an institution in

chanical ability and equipment to undertake to repair automobiles, and they soon graduated into garagemen.

Old Principles Sidetracked

From this brief resume of history it appears that the business of selling automobiles was something distinctly different from any other merchandising business and that the methods that yielded profit in one business could not be depended upon to do the same in the automobile business. Although this was not strictly true the conditions then prevailing made it particularly seem so. In the first place there was a fad among the wealthy for the ownership of automobiles for sport. The demand for vehicles from this source was a long time in being filled and then when car ownership became popular among persons of moderate means there developed a demand that grew by leaps and bounds. The practical utility of the motor vehicle for business and travel began to be appreciated, resulting in still further demand for cars.

It was particularly during this period of intense public clamor for automobiles that the ordinary principles of merchandising were temporarily sidetracked away from the automotive industry. When the public is crying for a product that cannot be manufactured fast enough to satisfy the cry it does not take salesmanship to ring up sales. The possession of keen business ability is not even essential for the reaping of profits by those engaged in the selling of the article. The demand makes the sales and at the same time makes the price practically free from the competitive element. Under such conditions many persons rush into a business, some make a profit and get out, some stay and are forced out when competition becomes keen, while still others survive and by the application of sound business principles continue to profit and grow.

Competition Must Be Met

The automotive business has reached the stage where competition rules. Its manufacturing capacity is more than enough to supply all legitimate needs of the trade. Ownership is well nigh universal among those persons voluntarily inclined toward motor car ownership. Selling has become more than mere order taking. The business is becoming stabilized as one in which representative retailers carry stocks for immediate delivery and vie with other retailers in the effort to have their goods preferred by the prospective customers. Standardization and perfection of the goods has reached the point that the customer's choice often is made not on the character of the goods, but on the record and reputation of the merchant.

It is here that the time-tried principles of merchandising come into play. The automotive business is a new business and for a time it appeared as if it were essentially different from all other business, but now the glamour is gone and

FUNDAMENTAL PRINCIPLES OF BUSINESS ETHICS

FOLLOWING is the Code of Business Ethics adopted by the Chamber of Commerce of the United States at its annual meeting held at Cleveland, May 6 to 8, 1924:

- I. The foundation of business is confidence, which springs from integrity, fair dealing, efficient service and mutual benefit.
- II. The reward of business for service rendered is a fair profit plus a safe reserve, commensurate with risks involved and foresight exercised.
- III. Equitable consideration is due in business to capital management, employes, and the public.
- IV. Knowledge—thorough and specific—and unceasing study of the facts and forces affecting a business enterprise are essential to a lasting individual success and to efficient service to the public.
- V. Permanency and continuity of service are basic aims of business, that knowledge gained may be fully utilized, confidence established and efficiency increased.
- VI. Obligations to itself and society prompt business unceasingly to strive toward continuity of operation, bettering conditions of employment, and increasing the efficiency and opportunities to individual employes.
- VII. Contracts and undertakings, written or oral, are to be performed in letter and in spirit. Changed conditions do not justify their cancellation without mutual consent.
- VIII. Representation of goods and services should be truthfully made and scrupulously fulfilled.
- IX. Waste in any form of capital, labor, services, materials, or natural resources—is intolerable, and constant effort will be made toward its elimination.
- X. Excess of every nature—the inflation of credit, over-expansion, over-buying, over-stimulation of sales—which create artificial conditions and produce crises and depressions, are condemned.
- XI. Unfair competition, embracing all acts characterized by bad faith, deception, fraud, or oppression, including commercial bribery, is wasteful, despicable, and a public wrong. Business will rely for its success on the excellence of its own service.
- XII. Controversy will, where possible, be adjusted by voluntary agreement or impartial arbitration.
- XIII. Corporate forms do not absolve from or alter the moral obligations of individuals. Responsibilities will be as courageously and conscientiously discharged by those acting in representative capacities as when acting for themselves.
- XIV. Lawful co-operation among business men and useful business organizations in support of these principles of business conduct is commended.
- XV. Business should render restrictive legislation unnecessary through so conducting itself as to deserve and inspire public confidence.

we find that the merchant who makes a profit is the one who observes the fundamental principles which have guided merchants in many other lines to success. These principles have to do, first, with his relations with the public; second, with his relations to those from whom he buys or has other business relations, and third, with his conduct of his own business.

The honest observance of these principles has more to do with profit in any business than does the volume of business done. It is these principles carefully observed which build up confidence in the merchant and enable him to increase the volume of his business while steadily making a profit on his present business.

The fundamental principles which should guide the merchant in his relations with the public and which should enable him to make a profit are these:

1. Honesty.
2. Courtesy.
3. Service.
4. Progress.

There is little need to enlarge upon these. Every man knows what honesty is. The scrupulous observance of honesty in his relations with his customers is the merchant's greatest asset. Without it he may profit temporarily but not for long. With it he may build for years and generations of profitable business

life. Honesty in business means among other things:

- Sell only good merchandise.
- Have fair prices.
- Make good on all promises.
- Make no claims you cannot live up to.

Honesty Is Fundamental

Honesty means to be truthful in advertising, in representations to customers, sincere in promise and specific in performance. Honesty is the foundation of business ethics and he who clings to it will find it comparatively easy to observe the other principles which are requisite for business success. It is the keynote of the code of business ethics stated in 15 principles by the Chamber of Commerce of the United States, the text of which is reproduced in another column.

Courtesy also is fundamental. Customers go where they are treated with respect and consideration. They may enter a store in antagonistic mood, but unfailing courtesy will disarm them and render them susceptible to reason. Courtesy, as well as honesty, should begin with the proprietor and should be instilled by him into every employe. If his establishment is more than a one-man business he does not personally meet all his customers in every transaction. He must depend upon his salesmen and other employes to saturate them-

selves with the spirit of the organization and display it to the customers with whom they come in contact.

Service as a fundamental principle of successful business does not mean what it has commonly come to mean in the automotive shop. Service of the mechanical type as performed in the automotive shop is better described as maintenance or repair work. Service as a business principle is the performance of one or more functions of material benefit to the community. The business that is economically sound renders service to the community by carrying a stock of needed goods sufficiently large to meet immediate demands, by making prompt delivery of needed goods to those who depend upon it for such goods, by studying the needs of its customers and advising them intelligently in the selection of goods that will most satisfactorily meet their requirements, and in other ways.

Should Lead in Progress

The merchant should be a leader in the progress of his industry. Whenever improved merchandise in his line is available he should provide his customers with it at the earliest opportunity. This does not mean that useful merchandise which renders full value for its price should be discarded and thrown away simply because a later type supposed to be an improvement has been put on the market. Such action would be economic waste and inexcusable. Progress means that the merchant should keep pace with the latest developments in his line and whenever possible make improvements available to his customers.

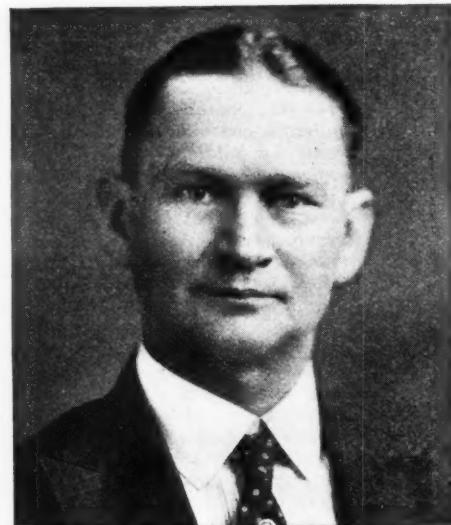
In his relations with those from whom he buys merchandise and has other business relations the good merchant of course will observe the principles of honesty and courtesy, but there are other specific principles the observance of which will add to his prestige and reputation as a capable and successful business man. Among them are these:

1. Faithful performance of all contracts.
2. Prompt payment of obligations.
3. Fairness in all relations not covered by contract.

Detailed comment on these is hardly necessary. The man who does not keep his contracts soon loses the confidence of those with whom he does business. Faithful performance of contract sometimes works a temporary hardship, but if it is possible to live up to a contract it pays to do so. Whenever it is apparent that strict performance of a contract will work an undue hardship on the merchant who is a party to it, it usually will be found that the other party will consent to reasonable modification provided the merchant has established for himself a reputation for fair and honest dealing.

The prompt payment of obligations is important. In the first place bills paid promptly usually are subject to a discount which in itself is sufficient to vitally affect profit when competition is

He Says It Pays to Ask 'Em to Buy



T. O. THOMAS, proprietor of the Thomas Sale & Service Co., Paducah, Ky., was invited to appear before the Automotive Equipment Association convention at New Orleans in April and tell how he made money selling automotive merchandise. In a letter to the editor of MOTOR AGE, Mr. Thomas says: "We have closely followed the outlines given by the A. E. A. in the promotion of accessory sales and are glad to say have profited wonderfully. Our general sales are far ahead of any previous records, and we attribute our success to our presistency in SELLING our merchandise, as well as our personality.

"We are pushing general sales and service, taking care of our patrons all night and giving them a service with which they seem well pleased. We operate our shop on the flat rate basis, advising customer always cost of labor before job is accepted. The more the manufacturer will co-operate with the jobber in this sales promotion campaign the greater will be the harvest for all three of us, manufacturer, jobber and retailer."

keen, and in the second place promptness in meeting obligations establishes a high character for the merchants which is valuable to him when he is in need of credit. Prompt attention to financial obligations avoids many misunderstandings and helps to make smooth the road to business profits.

Many relations between business men are not covered by specific contract or agreement. In such relations the merchant who wants to succeed on a permanent basis should always be guided by a spirit of fair play. He will find others willing to meet him half way and thus mutual confidence will be established.

Business Management Important

In the internal management of his own business, the automotive merchant, the same as any other merchant, has the opportunity to make or break his chance

for success. There he may either make profits or build up a deficit that eventually will overcome him. If he faithfully adheres to the principles already stated he has laid the foundation for success and needs only to observe these other requirements to be certain of having a surplus to put in the bank.

Among these other fundamental principles which should guide the merchant in the internal management of his business are these:

1. Make a reasonable profit.
2. Keep accurate records.
3. Keep store and shop clean, orderly and attractive.
4. Carry an adequate stock.
5. Keep abreast of progress in business methods.
6. Be fair with employees.
7. Be fair with competitors.

It is the degree of observance of these principles and not the volume of business done that will to a great extent determine the profit the merchant will reap. The remaining articles in this series will have to do with full discussion of these principles. For this reason no further discussion of them will be undertaken in this article.

(The next article in this series, to be published next week, will be entitled, "Where Profits Come From." It will tell why profits are determined by percentage rather than volume.)

USL PUBLISHES NEW BATTERY MERCHANDISING BOOK

The U. S. Light & Heat Corporation, manufacturers of USL storage batteries, have just published and have ready for distribution a book entitled "How to Build a Profitable Battery Business." This book is part of the new USL merchandising plan.

The first part of the book is devoted to the consideration of the market for batteries and the foundation which underlies the business of any successful battery distributor. The second part shows how the distributor can build up step by step on this foundation a permanent and profitable battery business. It includes chapters on financing a business, obtaining and extending credit, collections, sales and advertising policies and many other features of importance to the battery distributor's success.

DEALERS FOR SCHENECTADY

SCHENECTADY, N. Y., Sept. 22.—The Overland and Willys Knight car franchise for Schenectady county has been taken over by the McMullen-Wasson Auto Sales Corporation, a newly incorporated firm. The Schenectady Overland company, formerly handling these cars, now is selling exclusively the Flint

The firm was incorporated with a capital of \$25,000 and these officers, all of Schenectady: L. D. Wasson, president; W. D. Smith, vice-president and attorney, and Edward McMullen, secretary and treasurer.

A Power Driven Grinder Is a Shop Necessity

This Highly Valuable Tool Which, Besides Being Useful for Sharpening Purposes, Can Be Employed in Dressing Down Parts, Cleaning and Buffing

By B. M. IKERT

(This is the fourth article of a series dealing with useful shop equipment)

IT is possible to get along in the automotive shop without some certain machines and tools but not so with the grinder. By grinder we mean the more or less conventional grinding head on which two emery wheels are mounted with either a motor between them or a pulley, if the grinder is driven from line shafting.

Shop grinders can be bought in a variety of styles and sizes, but like every-

thing makes for a better all-around installation. Still, a well-mounted bench grinder will do the trick about as well.

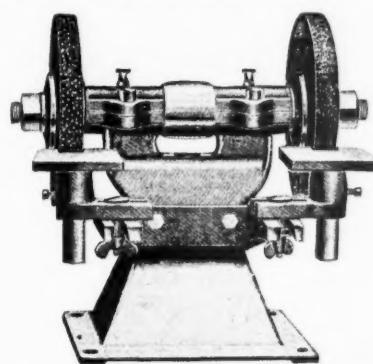
Two Wheels an Advantage

In choosing the grinder it is best to get one with two wheels because this makes possible using one side of the machine for buffing or other operations.

In almost every shop grinders of the type shown here are used for sharpening tools. The sharpening of cutting tools including chisels, drills, lathe tools, etc., is one of the most frequently performed operations and it is difficult to see how

By all means buy a grinder that is fitted with rests for holding the work to be ground. It is a pretty difficult job to hold a chisel or any other tool against a grinding wheel and maintain the tool in the correct relation to the stone unless a rest is provided. The adjustable rests are the best as they permit of any angle and height so that grinding can be on any angle desired.

A shop which does welding finds a grinder very useful in removing super-



This grinding head is for mounting on the bench and is driven from line shafting. The cost of an outfit like this is \$15, without the emery wheels

thing else there is probably a certain style and size that fulfills the needs of the automotive shop. After carefully surveying the field over long periods and covering all kinds of shops we have about concluded that a motor-driven grinder mounted upon a pedestal and having emery wheels of about 1 to 8 in. makes an ideal piece of equipment.

Motor Must Be Enclosed

The advantages of motor-driven equipment already have been pointed out in previous articles. In buying a grinder driven by an electric motor the thing to watch out for is that the motor is properly inclosed so that particles of emery cannot find their way into the mechanism of the motor.

While it is possible to get grinders for mounting upon the bench it seems that the most desirable mounting is upon a pedestal built of iron. This makes an excellent and more rigid mounting and besides offers a quieter operating machine. When a grinder is mounted upon a bench it sometimes sets up noise and vibration because of the bench acting somewhat like a sounding board. Hence, it will be appreciated that a grinder mounted on a pedestal and the latter resting on a good substantial floor usual-

Here is shown a grinder that makes an ideal layout for the automotive shop. It is motor-driven, has two wheels 1 by 8 in. and provided with rests for holding the work to be ground. A grinder of this type sells for \$120

any shop, therefore, can get along without a grinder.

The general shop also makes a good many parts and for turning up odd-shaped pieces and dressing down parts, there is nothing quite so handy as a grinder.

The grinder when fitted with a wire brush of the type shown is a most useful piece of equipment for cleaning small parts and in the shop which does battery work can be used for cleaning connections. In the tire shop such a brush is useful for cleaning rims before putting on a new tire. Likewise it can be used for roughing operations on treads and tubes.



A wire brush made in the form of a wheel and which can be mounted on a grinding head in the same way as an emery wheel. These brushes are invaluable for buffing operations on tires, removing rust from rims, etc.

fluous material from a welded joint and the process is much more rapid than filing. The grinder is useful in removing the metal from bearing caps in both main and connecting rod bearings, this, however, applies only to bearings which are not provided with shims such as used in the Ford engine.

By using a variety of emery wheels as to size and coarseness or fineness of grain, it is possible to extend greatly the usefulness of the shop grinder. Polishing can be done with fine texture wheels and the same pieces buffed with felt.

Cleaning for Soldering Jobs

Very often soldering operations have to be performed on rather large pieces and inasmuch as cleaning the parts to be soldered is half the battle such cleaning can be done excellently with a stone or wire brush. Especially is the wire brush desirable on odd-shaped pieces having crevices and nooks hard to get at with a scraper or file.

Sometimes it is desirable to cut a recess in a piece of material and here again a small and narrow stone can be placed on the arbor of the grinder the process done quite rapidly and accurately.

What Does a Live Dealers' Association Do?

Here's Record of One Meeting of St. Louis Organization—Resolution on New Models—Talks on Salesmanship and Ethics—Enthusiasm Aroused

THE report of this week's meeting of the St. Louis Automobile Dealers Association provides a splendid example of what is being done by one of the liveliest trade associations in the country to promote and benefit the automobile business for its own members and all other dealers. This meeting was attended by about 350 dealers and members of their sales forces. It was held at the City Club and was preceded by a dinner.

The principal purpose of the meeting was to discuss plans and create enthusiasm for the Closed Car Show which is to be held here the week of the Veiled Prophet, Oct. 6 to 13. But a subject of vital interest to the retail trade throughout the country came up for consideration and was disposed of with the usual straight forward and clear-cut action of this organization. This was the matter of manufacturers introducing new models in the summer time when the selling season is at its height.

A resolution was presented by F. C. McDonald declaring the introduction of new models at such time to be unwise and unfair to both the dealer and the public and recommending that manufacturers make such changes as are necessary and advisable in their product at times when it will not cause a break in the selling season. This resolution was referred to the Board of Directors, and the board immediately took it under consideration with the result that it was promptly adopted and the manager was instructed to forward it to the National Automobile Chamber of Commerce.

Say Liquidation Is Harmful

Some of the reasons given in the resolution for the attitude expressed were that new models in midsummer necessitate the liquidation of cars of the previous model at a loss of profit; that such liquidation encourages wild trading and increases the stocks of used cars bought at high prices; that the introduction of new models results in a temporary slowing down of factory production and a shortage of new cars when most needed; that yearly changes tend to unduly depreciate the value of previous models in the hands of the public; that confusion is caused in the identification of models by insurance companies, finance companies, dealers, manufacturers and the public.

But this was not the only subject talked about and acted upon. H. T. Salisbury, chairman of the show committee, reported all in readiness for the inclosed car show and requested that the committee be authorized to allot space instead of having members draw for it in view of the fact that the exhibition building is square and consequently all spaces would be identical. This proposition was approved.

Mr. Salisbury handed out some "don'ts" for the benefit of the members and their salesmen for guidance at the show. Among them were these: Don't smoke; don't park within a radius of two blocks of the show; don't visit the booth of a rival dealer in the guise of a pros-

pect for the purpose of obtaining information about the car and the sales talks of the salesmen.

The Rev. Mr. Bradley, pastor of a church at Webster Groves, a suburb of St. Louis, was present by invitation to deliver an address on personality in selling. He decried the product of the salesmanship schools in the selling world and declared that the greatest asset of the salesman is personality, which he defined as being just one's self.

Another talk on salesmanship was made by George R. Dunville of the Tate Motor Car Co. He urged the observance of a strict code of ethics.

Col. Phillip H. Brockman, a past president and now a director of the association, who is president of the Police Board of St. Louis, spoke on cooperation within the organization and cited several instances of the evident lack of cooperation between dealers. One was the failure of firms to cooperate on the used car problem. Another was the visiting of a rival's salesroom by salesmen for the purpose of surreptitiously obtaining information. Mr. Brockman digressed from his prepared talk to urge cooperation of automobile dealers and salesmen with the Police Department. He told of the number of cars bearing dealers' licenses he had observed breaking city ordinances and he urged that all men in the industry obtain a copy of traffic laws so they could intelligently advise their new car buyers how to safely and sanely operate an automobile. He said it was not only an act of cooperation but it was the duty of all men in automobile selling organizations to release a new car buyer only after the buyer was competent to handle the automobile.

Outlines Association's History

One very interesting feature of the meeting was the introduction by Robert E. Lee, who presided as toastmaster, of the past presidents of the organization and a recital of a bit of the association's history. The organization was founded in 1906 and incorporated in 1909. Since 1907 there have been ten presidents,

namely, O. L. Halsey, H. B. Krenning, Sam Breadon, Joseph Schlecht, F. W. A. Vesper, Frank R. Tate, R. C. Frampton, H. F. Fahrenkrog and F. C. McDonald, incumbent. All of these who could be present attended and those who were absent because of illness or other insurmountable obstacles sent letters or telegrams of representation. Valle Reyburn, the first president of the association, is dead.

Should You Help This Work?

A dollar invested in a membership in the American Red Cross during the annual Roll Call, from the 11th to the 27th of November, will buy these things:

Aid for disabled veterans. Since the Armistice the Red Cross has spent \$50,000,000 for services to men of the Army and Navy and World War veterans. It is now assisting more than 100,000 disabled veterans and their families each month. To 180,000 service men it is continuing the same service it gave during the war. And it has enrolled 41,000 nurses for emergency-war, epidemic, disaster.

Disaster relief. The Red Cross gave aid in 220 disasters during the past year. In the past 43 years it has expended \$33,000,000 in disaster relief.

Public health nursing. Within the year 974 Red Cross public health nurses have aided in the care of the sick, guarded the health of children and fostered understanding of personal and community hygiene.

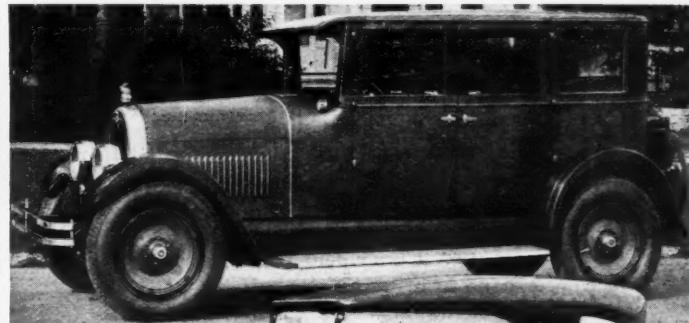
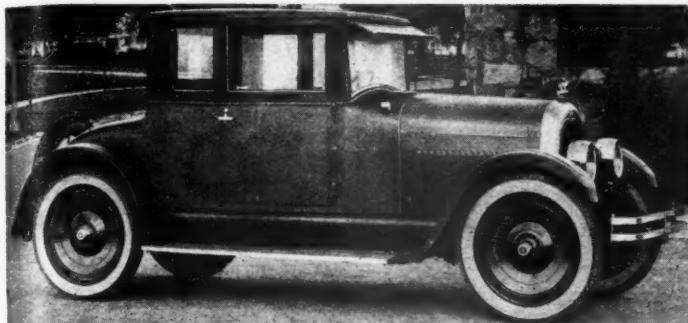
Courses in Home Hygiene and Care of the Sick. These courses have been taken by 65,000 women and girls. In addition, 135,000 children and 10,000 women have been taught the proper use of foods.

Life saving. More than 49,000 men, women and youths have been trained to rescue and revive the drowning.

First Aid. During the past year 14,500 persons completed the First Aid courses, and 137,000 were reached with demonstrations by the Red Cross First Aid Car.

Aren't these activities worthy of your support?

Apperson Adds Coupe to Its Six-Cylinder "Jack Rabbit" Line



Here are shown three of the Apperson six-cylinder models, of which the coupe is a new addition to the line. It is the first coupe presented by Apperson and sells for \$1985. Prices on the Sport Phaeton and Sedan are \$1695 and \$2095 respectively. Changes in radiator design following the lines of the radiator used on the Apperson eights have been adopted in the sixes. Nickel head and cowl lamps and radiator shell add to the appearance

The Boyle Valve With Two Piece Head

Larger valve opening for both intake and exhaust gases, reduction of valve noise and a wiping action which keeps the seat clean, are some of the advantages claimed for the Boyle valve now being made with a two piece head.

Where cars are being rebuilt for maximum power, a change is often made in the valves, the seats being reamed out to take larger ones. A change of this nature is simply made when Boyle valves are used, for it is only necessary to smooth off the casting around the old valve seat in order to use the flat type of valve, and to facilitate this work, special reamers are supplied for a nominal sum.

In Fig. 1 is shown the appearance of the valve head when the valve is raised. When the two piece head is assembled on the stem, the upper end of the stem is heated red hot and is then riveted down,

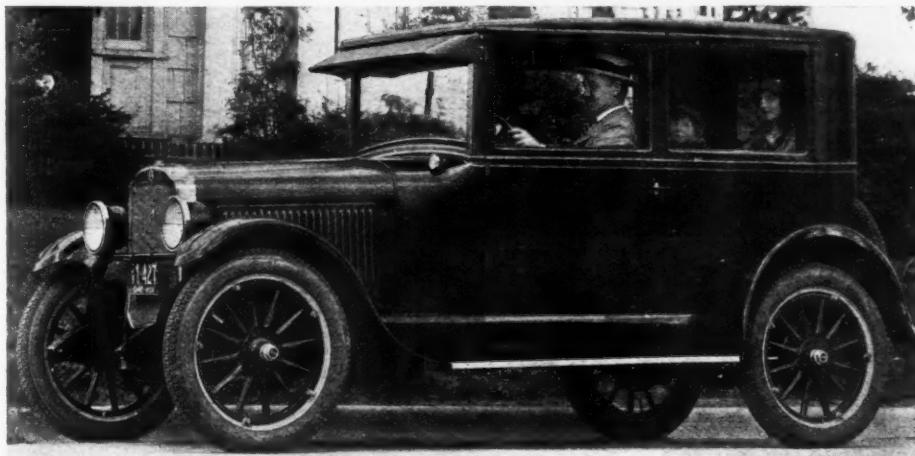
this high pressure in the center of the discs causing the edges to pull apart a small amount, leaving a slight air space at the edges. This construction is said to make the valve practically silent.

The explanation is said to be in the two piece construction and the air space left between the two discs which kills the noise much as a crack in a bell prevents its vibrating and therefore kills its

noise making ability. When the valve is seated as shown in Fig. 2 the lower disc is flattened out, causing the edges to move radially outward a slight amount which is said to keep the seats clean so that regrinding is but rarely necessary.

These valves, which are made for all poppet valve motors, are manufactured by the Boyle Valve Co., 5821 S. Ada St., Chicago, Ill.

Five Passenger Coach Added to Oldsmobile Line



Oldsmobile five-passenger coach which sells for \$1065. It is fitted with the Fisher one-piece windshield

A FIVE-PASSENGER coach priced at \$1065 has been added to the Oldsmobile line. The body is the first of this type to be built by Fisher and is equipped with the one-piece, sliding, VV windshield. The finish is Blue Duco and the upholstery is velour. The rear seat is 46½ in. wide and 22 in. deep and there is 18 in. of leg room between it and the backs of the front seats. Crank regula-

tors are provided on the windows in the doors and rear quarters. An automatic windshield cleaner and cowl lights are regular equipment.

A choice of three colors is now being offered on the two passenger business coupe. The colors are blue, maroon and brown, the finishing material being Duco in each case.

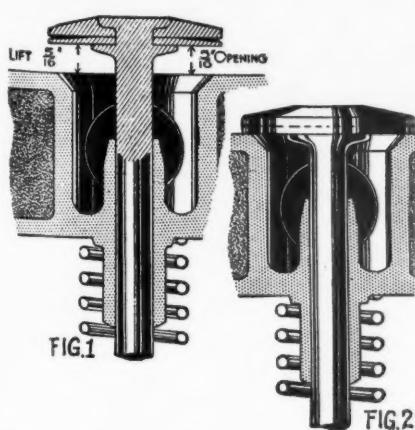


Fig. 1. The Boyle valve open. The clearance is equal to the lift
Fig. 2. The air space closes up when the valve is seated

Moon Cars for 1925

Hydraulic Four-Wheel Brakes, Balloon Tires and Disc Wheels Regular Equipment. Wide Range of Models and Body Styles Available

BEAUTY of appearance to facilitate sales, and standardization in mechanical details to facilitate maintenance, seems to be the creed of the designers of Moon 6 cylinder cars for 1925. At the same time it is evident that effort has been made to bring these cars up to the minute as far as engineering developments are concerned, for the four wheel brakes and balloon tires which have been optional as extras for the past few months are now regular equipment on all models, disc wheels also being standard and included in the prices quoted.

The brakes used are Lockheed Hydraulic on Timken axles with mechanically operated transmission brake used for the emergency and controlled by the conventional centrally located lever. The balloon tires are 30 by 5.25 on Series A cars, 31 by 5.25 on Newport and Metropolitan models and 32 by 6.20 on the largest car, which is known as the London model.

Frame Stiffened

In order to realize all the advantages possible with four wheel brakes and balloon tires, the frame has been stiffened and additional gussets used at the corners, while the Ross cam type steering gear formerly used on one model is now standard equipment on all. These details of construction insure comfortable traveling at high speed as well as facilitate parking where space is limited.

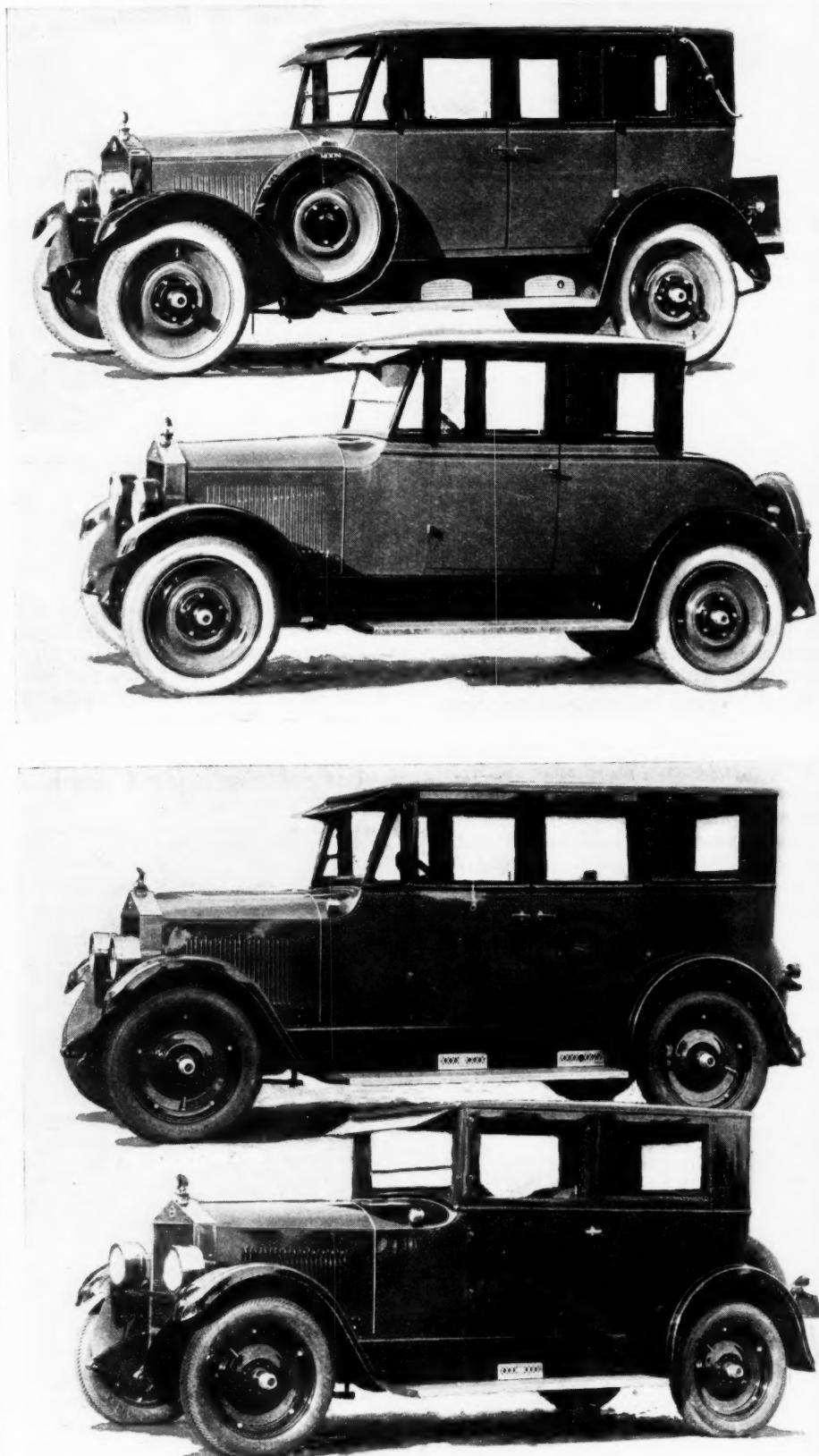
The typical Moon radiator as well as the general nature of the body lines so well known as characteristic of Moon cars, has been retained.

One of the outstanding cars in the Moon line is the Series A Two Door Sedan, a novel feature of this car being the right front seat and the various positions in which it can be used or put out of the way. Its normal position as in conventional cars of this type is such that it needs to be rocked forward to admit passengers to the rear seat. The construction of the front support is such, however, that it may be moved forward nine inches, for use when a child is using this seat, in which case access is provided to the rear seat.

It may also be left in this forward position if desired, with the back folded down, or may then be folded forward to provide a still wider passage to the rear seat.

Upholstered in Gray Broadcloth

The upholstering used is genuine gray broadcloth, velour of the same color also being available at slight additional cost. The finish of the Two Door Sedan is Duco gray satin up to the belt line, with black above. A black molding extends across the top of the cowl and



From top to bottom—Newport Petite Sedan (the Metropolitan Petite Sedan is similar in appearance but is on the 118-in. wheelbase chassis); Newport four-passenger coupe; Series A Four-Door Sedan; Series A Two-Door Sedan

along the sides of the car. The Alemite lubricating system is used on the chassis. Standard equipment includes cowl lights, toe plates, Perfection heater, metal sun visor and a Johnson theftproof transmission lock. Aluminum covered trunk rack and polished aluminum body rails are also included on this model.

The left front door locks from the inside and the right door from the outside. The door windows are equipped with crank type regulators. The price of this model is \$1695 f. o. b. St. Louis.

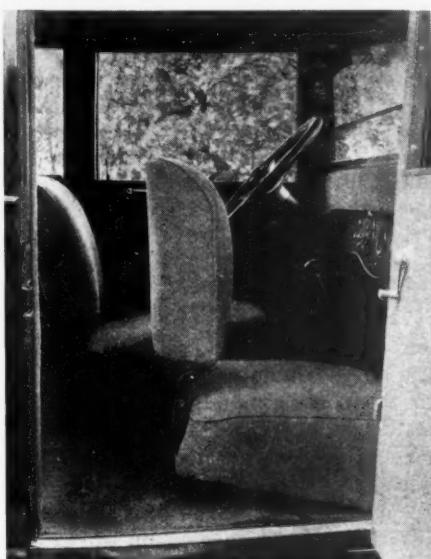
Similar to the Two Door Sedan is the Four Door Sedan of the Series A cars, the price being \$1795. The equipment with this model is the same as with the Two Door Sedan except that spare tire carrier and a spare rim are included. The windshield is of the triangular cornered type, providing maximum visibility to the right and left as well as straight ahead.

Roadster Is Roomy

The Series A roadster has in it a hint of the modern apartment house, where suites are designed for beauty and efficiency. Outwardly a roadster, it is never the less capable of comfortably carrying five persons, for the front seat is sufficiently wide to accommodate three, while two more may be carried in the rumble seat at the rear. Lifting the cover of the rear deck is all that is necessary to bring this rear seat into action; locks being built in to prevent unauthorized persons tampering with the rear compartment or its contents.

On this roadster a rear curtain is provided, which although secure when in place, is also easily removed when passengers are carried in the rear seat, so as to make it possible for those in the front and rear seats to converse with one another.

Other details which add to the satisfaction which the user gets from his car are Dill Instant-On valve caps, which require but a turn to either remove or



In the Series A Two-Door Sedan the right front seat can be moved forward 9 inches without being tilted or folded

The Moon Line for 1925 SERIES "A" MODELS

Continental, 6-Cylinder, 3 1/2 by 4 1/4 Model, 7-Z Motor
..... \$1395
..... 1450
..... 1695
..... 1795

NEWPORT MODELS

Continental, 6-Cylinder, 3 1/2 by 4 1/4 Model, 7-U Motor
..... \$1595
..... 2035
..... 2045
..... 2245

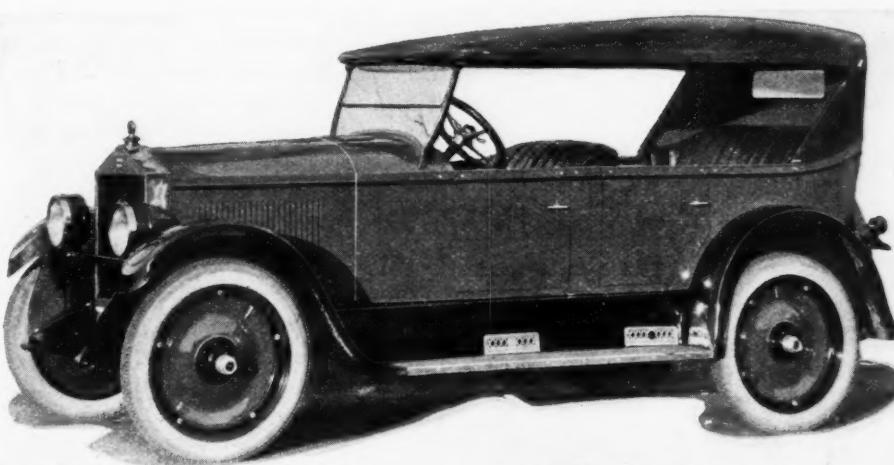
METROPOLITAN MODELS

Continental, 6-Cylinder, 3 1/4 by 4 1/2 Model, 7-C Motor
..... \$1695
..... 2135
..... 2245

LONDON MODELS

Continental, 6-Cylinder, 3 1/2 by 4 1/2 Model, 8-R Motor
..... \$2095
..... 2885

All prices are F. O. F. factory, the Moon Motor Car Co., St. Louis, Mo.



A permanent top and flush type fasteners add to the attractiveness of the Series A touring car

replace. The cowl ventilator is also of a type which makes adjustment of the opening both simple and rapid. A lever type handle is provided within easy reach of the driver. Pushing the handle forward opens the ventilator, while lifting the ball knob and pulling the lever back again closes the ventilator.

Finished in Duco Gray Satin

Finish of the roadster is Duco gray satin, with blue Spanish leather upholstery. Aluminum step plates at the rear fenders provide access to the rear seat. A spare tire and rim are carried at the rear of the car. The top, if not needed, may be folded back without interfering with the occupants of the rear seat. The price of this five passenger roadster is \$1450 f. o. b. St. Louis.

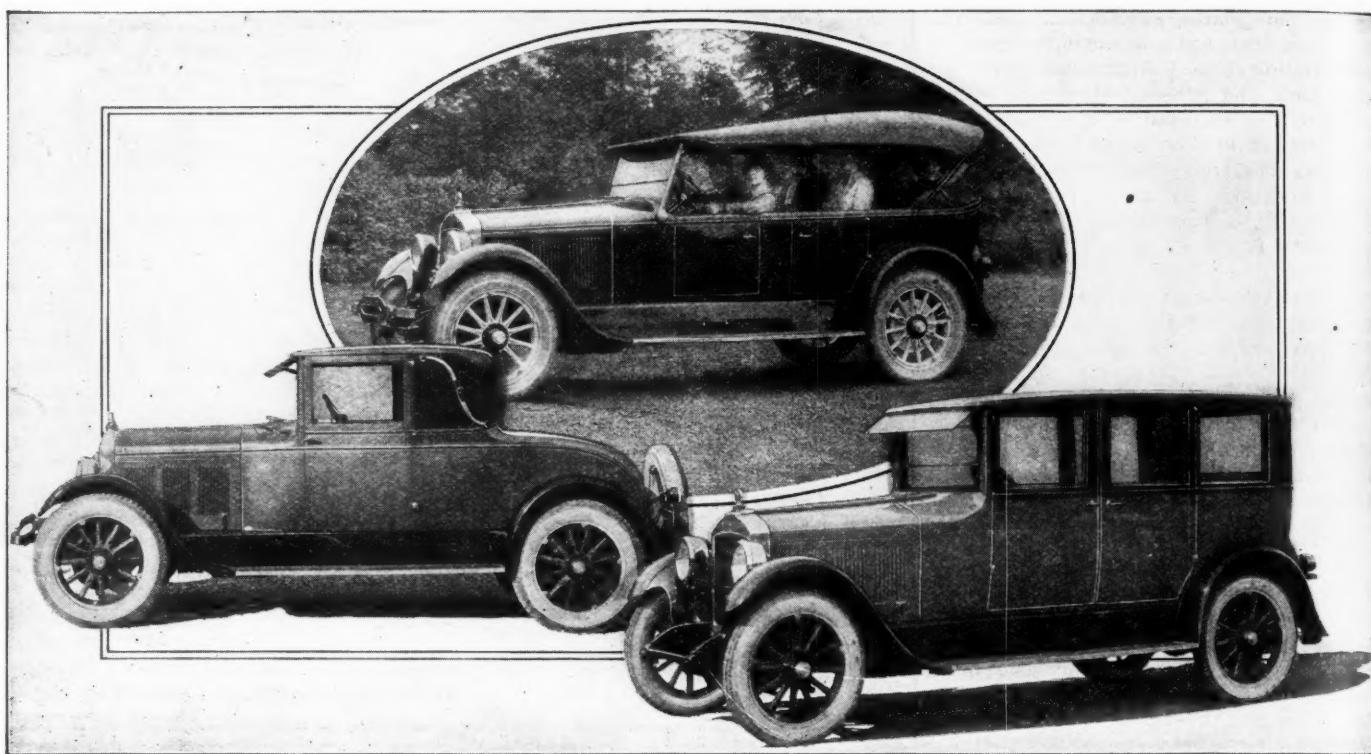
The touring car of the Series A line is regularly fitted with a permanent top,

curtains being provided which open with the doors. These curtains are attached by means of flush type fasteners, which in addition to making the curtains secure when in use, are out of the way when curtains are not needed.

While the fasteners may contribute to the ease with which the appearance of the car may be maintained, the use of Duco satin finish on all Moon models is no doubt the greatest step in the direction of maintaining the car at its best. This finish is the regular Duco finish, but on top of this a polishing process is used. Upholstery of the touring car is tan genuine Spanish leather. Marine blue is the finish regularly used, a one-inch black molding running the length of the car.

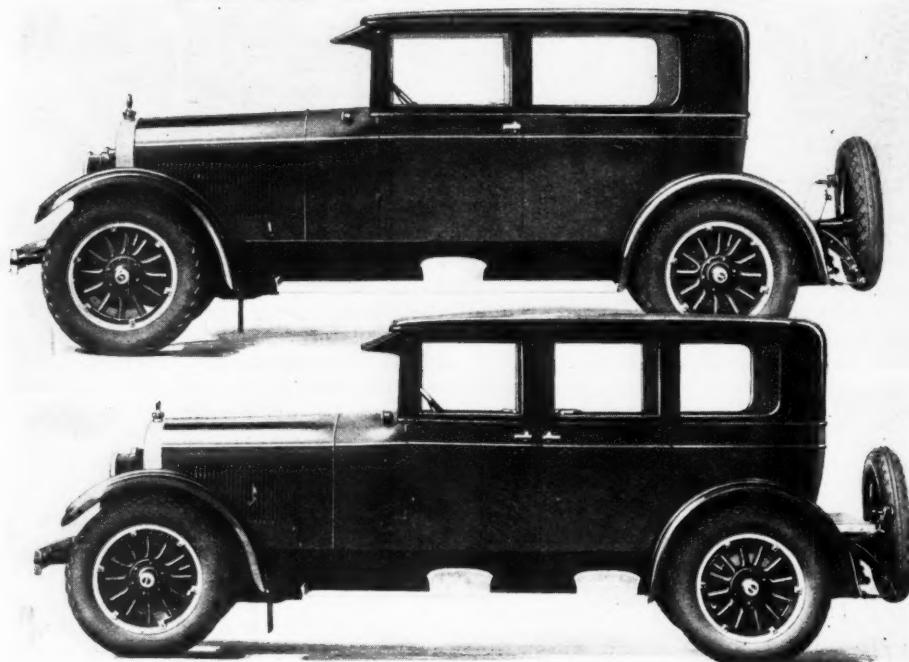
The price of the touring car is \$1395 f. o. b. St. Louis.

New Sterling-Knight Models



The upper picture shows the 7-pass. touring car listing at \$2400. This has a body 7 in. longer than before on a 125 in. wheelbase chassis. The 5-pass. touring car, not shown, lists at \$2150. The view at the left shows the 2-pass. coupe roadster listing at \$3100. The single seat is 46 in. across and 20 in. deep. There is an opening into the rear deck. The view at the right is of the 7-pass. sedan priced at \$3050. The 5-pass. sedan, not shown, sells for \$2800

New Chandler Closed Models



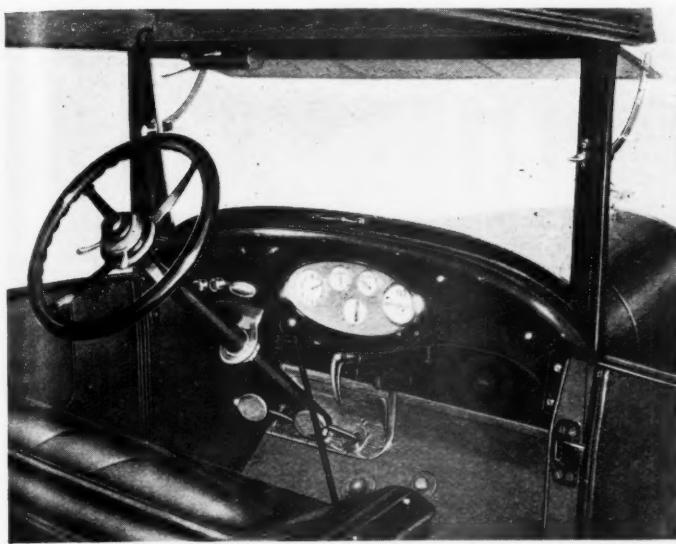
Above, new Chandler Chummy Sedan, seating five people and listing at \$2045 factory; below, the Metropolitan five-passenger sedan listing at \$2195. Both these models are equipped with balloon tires and Fisher VV windshield, bumpers, front and rear. Color schemes are: regular, black top with Luxor blue body, with the option on either model of black top and sagebrush green Duco finish on body

The Standard Auto-Electrician's Manual

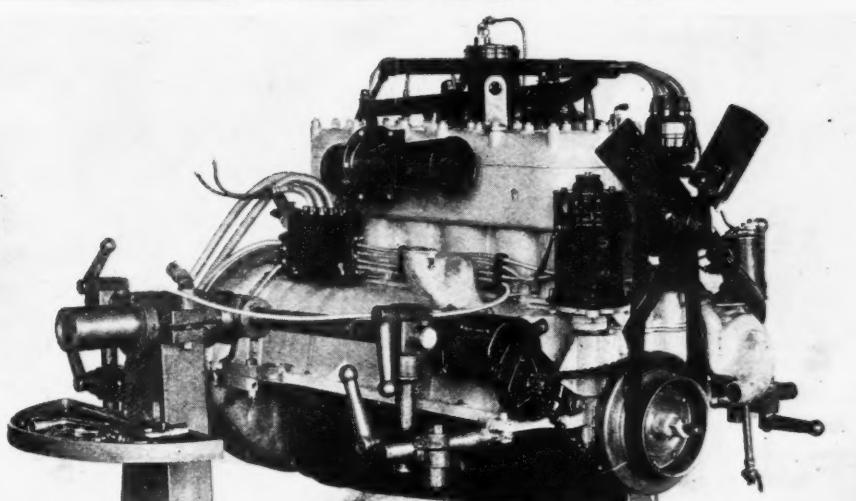
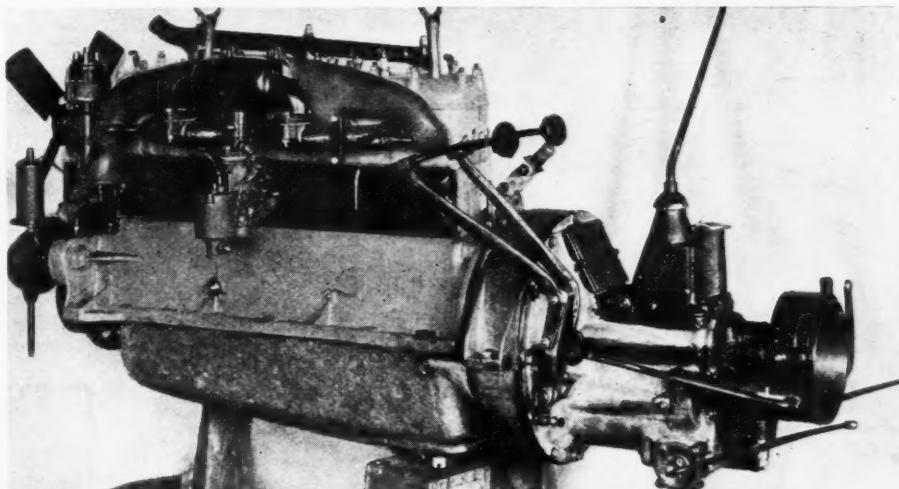
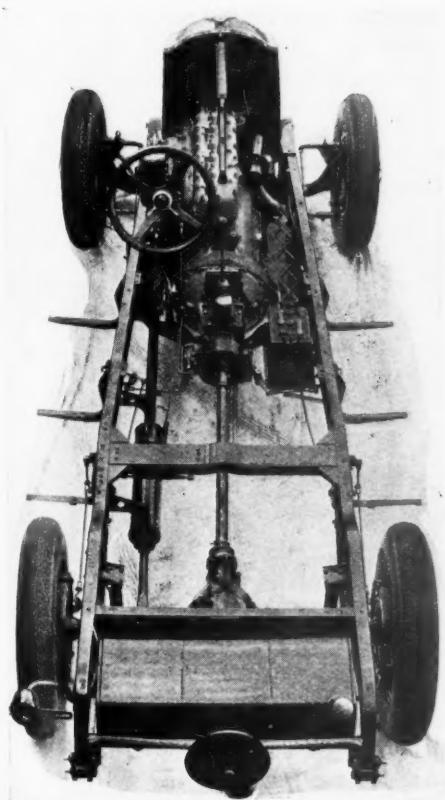
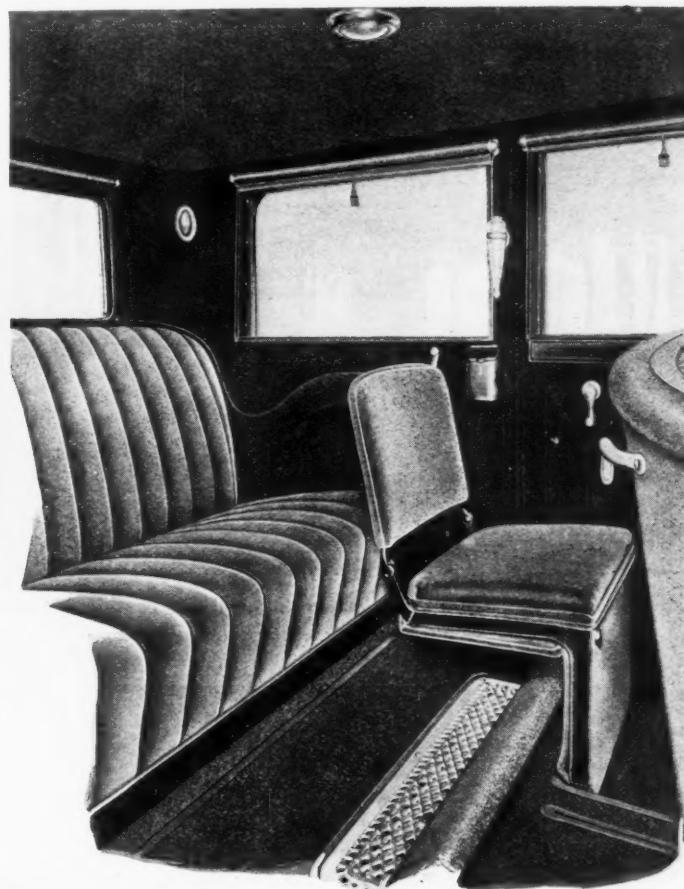
Time and money can be saved in the electrical department or the electrical shop by having the wiring and electrical data on cars being serviced. The Standard Auto-Electrician's Manual gives this information in simple concise form. The wiring of each car is given on a separate sheet, heavy brown Kraft paper being used to make the diagrams durable, while the size of 10½ by 12 inches makes the diagrams and notes easily read. Both internal and external circuits are shown on the same diagram, and the layout is such that the units are indicated in the same relative position that they occupy on the car, so that with an unknown car, the electrician can lift the correct side of the hood.

The rear terminals of switches are accurately shown and terminals are identified by extra numbers, so that a reference to the data section makes it a simple matter to determine the "live" terminals for any switch position, either lighting or ignition. The complete manual sells for \$17.50, while extra pages supplied each year to keep the manual up to date sell for \$3.50 for each yearly supplement. The binder is of the loose leaf type so that the supplementary pages are easily added.

Some Details of Studebaker Cars Described Last Week



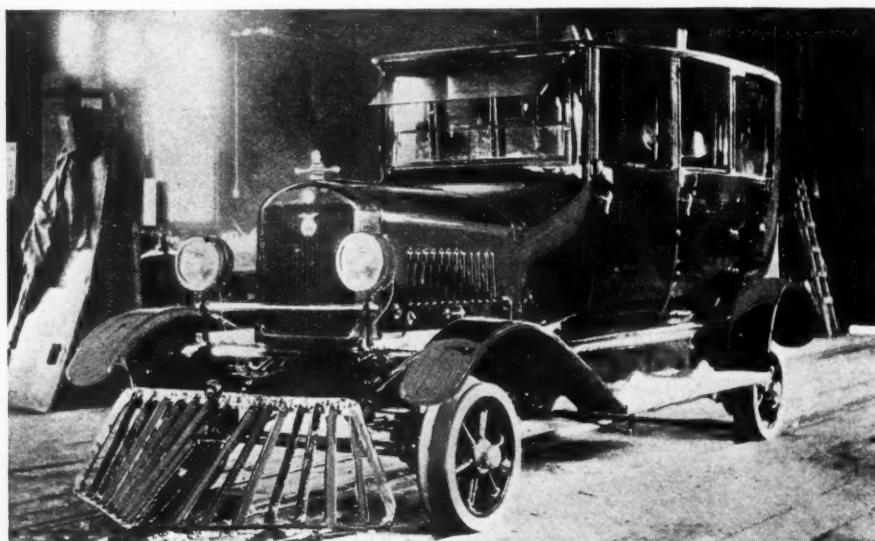
Above: The new Studebaker Standard Six five-passenger Duplex Phaeton showing instrument board; upper right, the seven-passenger sedan showing auxiliary seat and heater; below, Special Six chassis, showing also the front-wheel brake operating shaft and supporting bracket which bolts to the axle; lower right, top, left side of Special Six power plant. This view shows the location of the cylinder containing the brake operating pistons and the levers through which they operate the brake linkages; bottom, right side of Big Six power plant showing location of fuse box. Starting motor drive is through roller chain and over-running clutch. Housing directly in back of fan drive pulley contains Lanchester vibration dampener. Generator and distributor driven from timing gears by helical pinions



MOTOR AGE'S PICTURE PAGES



Los Angeles is declared by its boosters to have more complete automotive service stations than any other large city in the country. The one shown here employs two girl cashiers to care for the receipts



This hybrid automobile railroad coach is powered by a Studebaker Light-Six engine. It is used by one of the southern railroads for inspection trips over its lines



The city council at Milford, Ia., must have a sense of humor. Instead of the usual speed limit warning at the edge of town motorists are "urged" to be careful in a way that commands attention



Here we have the first automobile in Los Angeles, built in 1890 by a Mr. Erie, who is shown driving his creation. It is said that the machine could be heard for blocks around

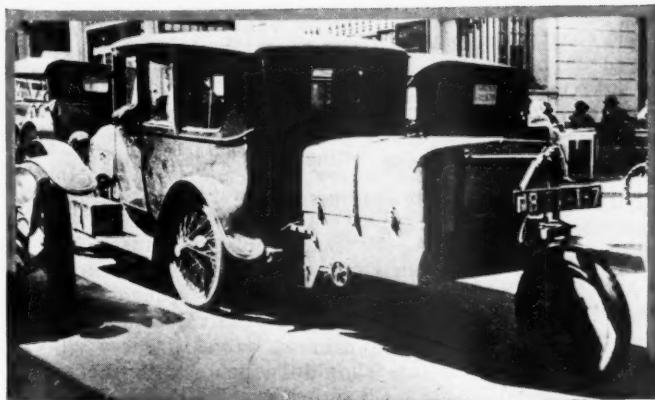
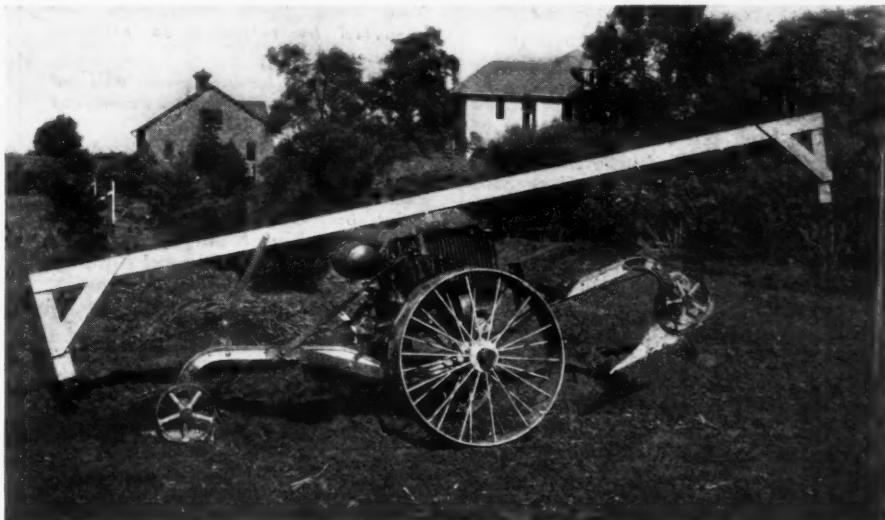
OF AUTOMOTIVE INTEREST



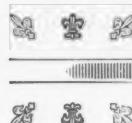
Ben Hur up-to-date! Fordson tractors furnished the motive power for the three "chariots" in a special race at the Iowa State Fair



Two Iowa University students invented this automatic "manless" plow consisting of a two-wheel tractor with 4 hp. single cylinder engine. While one plow bottom is in action the other is carried above the surface of the soil. The machine travels back and forth in shuttle style. A reversing arm upon coming in contact with the boundary fence is pushed back to a point where spring action reverses the direction of the drivers. The reaction lifts the plow in service out of the ground and swings the opposite plow down. The inventors admit that it is essential to have rectangular fields with fence barriers to operate the machine without the supervision of human hands



From Dinard, France, comes this ingenious trailer for carrying luggage. One requires no strong imagination to visualize the number of uses to which it can be put



A progressive Canton, O., undertaker devised this motorcycle ambulance which has a specially constructed cot and is covered to protect the patient from the weather. It can be adjusted to accept a passenger in any reclining position

The READERS' CLEARINGHOUSE

Questions & Answers on Dealers' Problems

Front Wheel Camber

Q. We have a Ford model T and two sets of spindle arms. One set makes the front wheels stand wider apart at the top than the other set. The front radius rod is the late model and the spindle arms are the same on each pair of spindles. The only difference at all is in the pitch of the wheels. The pair now on the car gives the wheels considerable more pitch or outward flare at the top than the other pair. Which of the two pairs of spindle arms will make the car hold the road best at fairly high speeds, the pair with a great deal of pitch to the wheels or the pair with less pitch? Does this really make a great difference?

According to Ford information which we have available the spindle arms are correct when the distance between the felloes at the top of the wheel is $2\frac{1}{2}$ in. greater than it is at the bottom of the wheel. On many cars the steering king pin if projected to meet the road would strike inside of the center of the tire. This means that any obstruction which the wheel encounters tends to turn the wheel outward around the king pin as a center. To eliminate this condition entirely it would be necessary for a projection of the king pin to strike exactly at the center of the place where the tires make contact with the road. Then theoretically any obstruction encountered would not produce a turning movement around the king pin. We accordingly conclude that the set of spindle arms which gives the nearest approach to this condition will be the set which gives easiest steering. With the king pins vertical however, it means that the wheel must have considerable slant so that the side of the tire will wear more than would normally be the case.

Q. Do most racing cars have a great deal of this outward pitch at the top of the front wheels?

No, the wheels are vertical and the effect above described is obtained by a special type of axle in which the king pin is set at a slant so that a projection of the center line of the pin would go outward and meet the center of tire contact with the road.

Q. Does the angle of the wheel make much difference in the wear that is produced on the tires and if so which wears the most?—Jesse L. Felger, Pheba, Miss.

There may not be much difference in the amount of wear but with the wheels set at an angle the wear will not come in the center of the tread but will come off to one side.

USE SUMMER SERVICE CHART

Q. We had a Buick that came into the shop a few days ago that was not hitting on all six. We found it necessary to put in oversize valves, new valve springs, new rings and took up all bearings. After we did this the car would idle all right at low speed and hit O. K. up to a speed of 35 or 40 miles per hour. Then it would

The Readers' Clearing House

THIS department is conducted to assist dealers and maintenance station executives in the solution of their problems.

All questions are answered direct by letter, so the name and address should be given in full. This saves waiting for the answer to be published, which sometimes occurs several weeks late, depending upon the space available.

Readers' names will not be published with articles, if a request to this effect is received with the letter.

Inquiries not of general interest will be answered by personal letter only. Emergency questions will be replied to by letter or telegram.

Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been made and these are answered by reference to previous issues.

Addresses of business firms will not be published in this department but will be supplied by letter.

Technical questions answered by B. M. Ikert, P. L. Dumas and A. H. Packer; Legal, by Wellington Gustin; Paint, by G. King Franklin; Architectural, by Tom Wilder; Tires, by a Practical Tire Man; General Business questions, by MOTOR AGE organization in conference.

drop a shot once in a while. Sometimes it would drop several straight together, then hit fine again for a while. Will you please give us some information regarding this? This car was only run about two hours when we made this test. Do you think it could be in the carburetor adjustment or is it because the valves and rings had not yet had time to properly seat? We only recently subscribed to your magazine and will appreciate any suggestions that you see fit to make. Gilmore Garage, Gilmore City, Iowa.

All of the suggestions that we could possibly make are given on a chart published between pages 48 and 49 in the Summer Service Issue of MOTOR AGE under date of May 15, 1924. We would suggest that you give this chart careful consideration and let us know the results of your tests. You will notice that in following out the test indicated on the chart you divide between trouble experienced at low speed and at high speed. The trouble you describe comes under the high speed classification and sounds as if items Nos. 2, 3, 4, 5 or 6 in this portion of the chart would be possible sources of trouble. We will be glad to hear from you after you have made the tests indicated on the chart.

Six Volt Battery On 1916 Maxwell

Q. Is it possible and practical to install a 6-volt battery in a 1916 Maxwell? The reason we wish to make this change is to get away from the complicated wiring which is now on the car. Will the generator charge a 6-volt battery all right?—Kilgore Garage, Kilgore, Neb.

This can be done if there is no objection to cranking the engine by hand. There are three ways of doing the job. First a 6-volt battery may be installed and all of the old wiring used. Second a 6-volt battery may be installed and the car can be rewired using the same regulator and cutout. Third, the 6-volt battery can be used and the car rewired, discarding the old regulator and using a standard 6-volt cutout, like on a Ford car and a 2 gang lighting switch with resistance coils on the back to serve as a substitute regulator. While you mention objecting to the complicated wiring, you do not say whether you intend to rewire the car or not, so we hardly know which system you favor. On page 36 of the July 24, 1924 issue of MOTOR AGE, there was shown a wiring diagram of this car and you can refer to it if you merely wish to install the 6-volt battery. Negative terminal would be grounded as indicated at terminal 15, while positive terminal which is shown at No. 12, would be connected exactly as in this diagram. Cables which normally go to battery terminals 10 and 13 would be taped up and left on the car. We are sending you by letter page 36 of the July 24, 1924 issue of MOTOR AGE which gives this diagram also page 47 of the December 13, 1923 issue of MOTOR AGE which shows a car of this kind rewired with special equipment. If there is additional information you want or some special way you wish to wire up the car let us know and we will supply necessary wiring diagram.

CLEARANCE FOR CHEVROLET VALVES

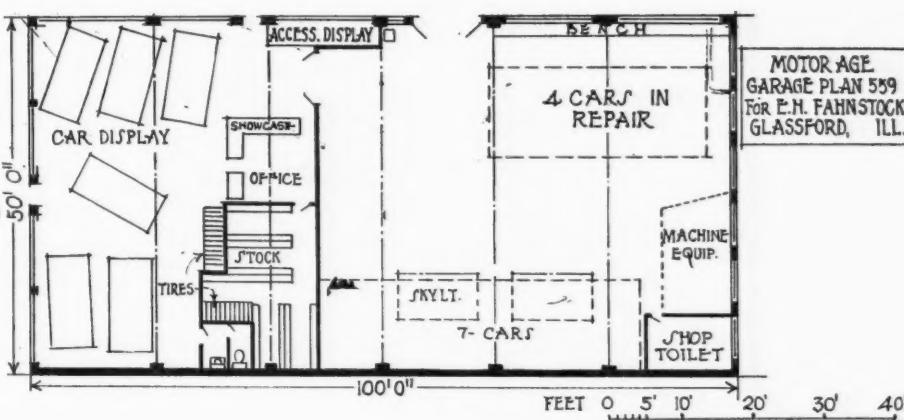
Q.—Would it be possible by means of a special oiling system to eliminate the noise caused by rocker arms and rocker arm bearings on a 1924 Superior Chevrolet?—Herman Barber, Iola, Kan.

A.—Excessive noise is caused by too much clearance between the rocker arm and valve stem. This space should be .008 in. for the intake valves and .010 in. for the exhaust valves. These adjustments should be made with the motor hot. Clearance greater than the figures given will cause noise while if the clearance is insufficient, the valves may be held open.

Plan for Glassford Building

Q. Enclosed find sketch and location of lot on which we intend to build a new garage within the next year or so, the size of lot is 50x100 feet and we want to build a one story building as large as will be possible on this size of lot, it will be built of plain show white concrete blocks with plate glass front. We have not as yet other plans for same in the way of design of building, trusses, roof, windows, doors, layout of interior, kind of material to use and etc. We will want a showroom that will hold at least six Ford cars in case of emergency of room in shop, office size 10x10 feet, stock room that will take care of 13 sections of steel Ford parts, bins size accessories, tires, etc. We now have three floor plate glass show cases, length sizes 4, 6 and 8 feet, which we would like to be able to use if possible. We now employ three men in shop. We will want shop to hold as many Ford cars, trucks and tractors as will be possible to get in. Will want wash rack and location for steam heat plant. Will want gas pump on main street.—E. H. Fahnstock, Glassford, Illinois.

A six car showroom in a building 50x100 ft. is quite extensive. We have found that it has to some extent, limited the area of the shop. As you will note we



have arranged to take care of your show cases and also the stock bins with three additional bins and some shelves for accessories and tires. We have not, however, arranged the boiler room, but suggest that it be entered from the alley side of this building. The only thing that we feel that you would be dis-

pointed in would be the amount of space for car storage in the shop, but one must not expect too much from a limited space and we believe this space is used to the very best advantage. Besides the cars we have shown it would be possible to store several more up against the office and stockroom partition.

Architectural Service

IN giving architectural advice, MOTOR AGE aims to assist its readers in their problems of planning, building and equipping, maintenance stations, garages, dealers' establishments, shops, filling stations, and in fact, any building necessary to automotive activity.

600 W May Locate Puzzling Knock

Q. We have a Chevrolet Superior model that has a peculiar knock in the engine at low speed. This sounds to us like a wrist pin knock, but we have installed all new wrist pins, have taken up on all connecting rods and main bearings and replaced lower half of center main bearing, but after all our work and effort have failed to take out the knock. While running this car at the rate of 10 miles per hour the knock is very pronounced.

You do not mention checking up the camshaft and it is possible that the cam-shaft bearings are worn and that this causes the knock. It is also possible that the camshaft gear is not square on the shaft or that it is loose on the shaft, or eccentric. While you mention checking up the wrist pin bearings and the connecting rod bearings, you do not say whether you checked the connecting rods for alignment, for if one of the connecting rods is bent or twisted it may cause the piston to slap back and forth and produce a knock which may sound like a wrist pin. One method of testing for wrist pin or piston slap trouble which was suggested to us is to pour about a tablespoonful of 600 W. in the top of a cylinder, pouring it in at the spark plug opening. This heavy oil will cushion the piston and wrist pin temporarily. Of course, this practice should not be continued, as it will gum up the piston rings. This can be done in one cylinder

When making request for assistance, please see that we have all the data necessary to an intelligent handling of the job. Among other things, we need such information as follows:

Rough pencil sketch showing size and shape of plot and its relation to streets and alleys.

What departments are to be operated and how large it is expected to be.
Number of cars on the sales floor.
Number of cars it is expected to garage.
Number of men employed in repair shop.
How much of an accessory department is anticipated.

at a time and if in any cylinder it stops the noise it shows that the trouble is in the piston slap or wrist pin looseness. We are also sending you by separate letter a list of 34 possible causes of engine knocks.

Engine Misses at From 10 to 15 Miles Per Hour

Q. We also have a 1922 Chevrolet 490, that will miss at low speed, that is at speeds between 10 and 15 miles per hour. Kochka Brothers, Upper Bloomingdale, N. J.

The first thing to do is to find out whether the trouble is due to ignition or some other condition. Remove one wire at a time from the spark plugs and with engine running hold within 3/16 in. of the engine. The spark should jump regularly. If the spark jumps nine or ten times and then misses a shot then hits five or six times more and then misses again, it shows that the trouble is in the ignition system. This may be due to a loose connection in the wiring or to burnt interrupter contacts or to a coil which is weak or possibly to a condenser which is loose and not firmly connected. Inspection of the ignition contacts may show that the layer of Tungsten has been burnt or filed away so that new contacts may be needed. The line of the weld between the layer of Tungsten and the rest of the contact can be seen if the side of the contact is either sanded or filed. If the sparks jump

regularly the next thing to do is to run the engine on two cylinders, first on the front two and then on the rear two to see if the spark plugs are giving trouble. While running on two cylinders, one of the two which is firing may be shorted out with a screw driver so that the engine runs on one cylinder. In this way it may be possible to detect a weak cylinder. It would also be well to check compression of the engine. If the engine misses on a heavy pull at low speed it may indicate either a weak ignition coil or a spark plug porcelain which is cracked. It is also possible that the spark plug gaps are either too small or too wide and it would be advisable to set them at .025 in. If the trouble does not seem to be in the ignition or spark plugs it may be in the carburetor being set either too lean or too rich. A lean setting will usually be noted by lack of power and by occasionally popping back in the carburetor while a setting which is too rich will produce galloping when the load is light. It is also possible that there are air leaks in the intake manifold gasket or due to the throttle shaft of the carburetor being worn or due to the valve stems or valve guides being worn. Air leaks can usually be located by squirting gasoline at the suspected places and if the engine suddenly picks up or changes its method of running it shows that the gasoline has been drawn in at the air leak.

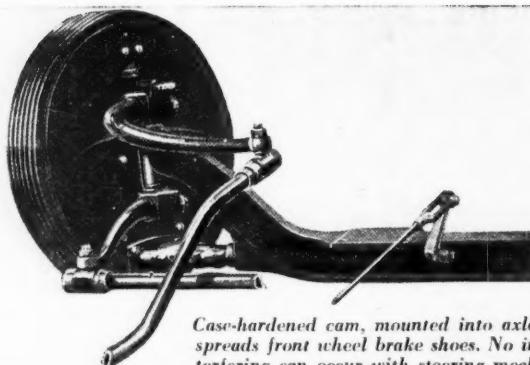
Fast Cars and Their Brakes

Q. Give diagram of the location and valve operation on a Duesenberg and Wills St. Claire automobile, also the advantages that each manufacturer claims for them.

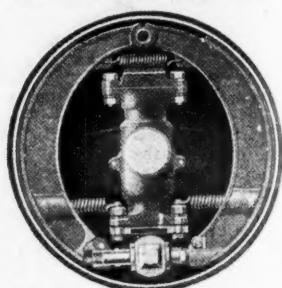
A diagram of the Duesenberg valve layout was shown on page 23 of the May 29th, 1924 issue of MOTOR AGE, while a diagram showing the valve layout on Wills St. Claire cars was published on page 34 of the July 24, 1924 issue of MOTOR AGE.

Q. Can you publish the brake layout of a Duesenberg stock car and the Pierce Arrow 33, also giving a view of one of the drums in each of these cars showing the parts and the tasks they have to perform?

Duesenberg cars used lockhead hydraulic brakes, the operation of this system having been described on page 56, of the November 1, 1923 issue of MOTOR AGE. We assume that on the Pierce Arrow 33 you wish an idea of the front wheel brakes which are optional on model 33 and regular equipment on model 80. We are accordingly showing a view of the front axle and also an interior view of the drum itself. A hardened steel cam serves to separate the brakes used at the front wheels so as to make them engage



Case-hardened cam, mounted into axle, spreads front wheel brake shoes. No interfering can occur with steering mechanism when turning in either direction



Cross-section of front brakes, showing how block cam spreads the brake shoes, no matter what the position of the front wheels

with the drum. To adjust the front wheel brakes it is necessary to loosen the clamp bolt and turn out the adjusting screws on each shoe to get .005 to .006 in. clearance all around, between brake liner and drum. The bolts are then tightened again. Access to this point of adjustment is had by removing plates on the inner side of drum.

Q. How many r.p.m. does the Duesenberg, Wills St. Claire and Pierce Arrow 33 motors turn, maximum, and what is

the piston displacement of each?—Oscar Shilts, 1355 W. Washington boulevard, Chicago, Ill.

The Duesenberg will turn up approximately 3600 r.p.m., the Wills St. Claire approximately 3100 and the Pierce Arrow approximately 2400. This piston displacement of the Duesenberg is 259.7 cu. in. The piston displacement of the Wills St. Claire is 265.4 cu. in. The piston displacement of the Pierce-Arrow model 33 is 414.7 cu. in.

A Hard One to Find

Q. We have a Durant four coupe, model A which is giving trouble. It is hard to start and when the motor starts it snorts and spits as if the mixture was too lean, when accelerating. Then when idling it gallops but when pulling it is all right and cannot be beat for power. Sometimes it works all right, being best in the evening and as long as motor is cool. When it warms up it starts to spit and sputter as if it were not getting gas right. Eight new valve guides were installed and the valves were ground and adjusted to have the right clearance. New gaskets were used all over the engine. This car was equipped with a Tillotson carburetor but this was changed to a Rayfield with no improvement in the operation of the engine. We could not get any adjustment that would make it work the way it should. We then put new points in the distributor and tried a new coil. In fact we tried three coils with no improvement. The spark is very weak and will not jump more than $\frac{1}{4}$ in. on the high tension wire from distributor to coil. Should the spark not jump at least $\frac{3}{4}$ to $\frac{1}{2}$ in.? The battery is fully charged. What would cause this condition? Sometimes the engine will not start if you try to use the starter, but just give the crank a spin and away she goes. The rings are in good shape and the compression is O. K. If you accelerate very slowly the engine picks up all right, but if you step down hard on the gas the engine will spit a few times and then stop as if the ignition switch had been turned off. Then shut all the gas off and she will naturally start to hit on one and two for awhile and then pick up on all four. The warmer it gets the worse it gets for power and for spitting and for fluttering. The regular adjustment for this Tillotson carburetor is $2\frac{1}{4}$ turns of needle valve, but this motor will not run until 4 or 5 turns of the valve. It was the same way with the Rayfield carburetor. This car has got me guessing and not only me but 576 other mechanics are also stumped.—M. D. Leisure, R. F. D. No. 1, Punxsutawney, Pa.

We suspect that the trouble is in the

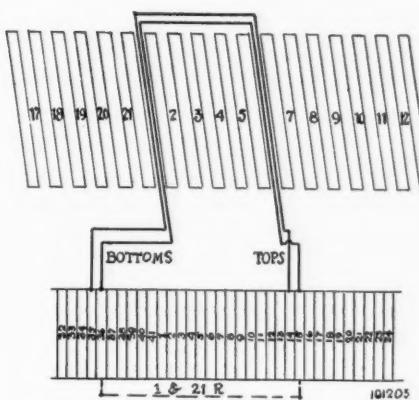
ignition; by this we do not mean necessarily that the coil or condenser or interrupter is in bad condition but that somewhere in the ignition system there is trouble. This is possibly due to a poor connection or a corroded contact in the ignition switch. To see whether this is the case or not you can use a 6 volt test light. Turn on the ignition switch and turn the engine over by hand until the interrupter points are touching each other. Then take your test light and connect it right at the battery terminals and see how bright it is. Then take the test light and connect it from the frame of the car to the terminal of the ignition coil which has a wire coming to it from the ignition switch. The lamp should be about the same brightness. It may be slightly dimmer when connected from coil to ground, but should not be much dimmer and if it is very dim it shows that there is a heavy loss of voltage somewhere in the circuit from battery to ignition coil and you cannot expect the coil and ignition system to work right. A good coil should give a spark which will occasionally jump $\frac{3}{4}$ or $\frac{1}{2}$ in. as you say. Then with spark wire removed from the spark plugs and held within $\frac{1}{8}$ in. of the engine the spark should jump regularly without missing while engine is running. If you have a voltmeter you could take the battery voltage and then the voltage from the coil to the frame of the car instead of using a lamp, but the lamp is a simple way of testing if you do not have a voltmeter. Another way to detect a poor connection in the ignition circuit is to turn on the switch and with the inter-

rupter points touching each other watch the discharge on the ammeter. If the needle fluctuates and shows an unsteady reading it indicates a poor connection. If you find that a poor connection is causing the trouble you can eliminate the ignition switch by connecting the wire from the coil directly to the ammeter. It is possible however, that the poor connection may be in the ammeter itself and if you wish to entirely eliminate the wiring on the car you can do so by setting a separate battery on the running board and grounding one terminal of it to the frame of the car. The other terminal of the battery could be connected to the ignition coil and you could then run the car in this way. The only old wire in the circuit would then be the low tension wire from the coil to interrupter and the high tension wiring. A weak spark will jump more easily through a mixture if the mixture is rich. It is possibly for this reason that you have had to adjust the carburetor to get a very rich mixture. Another possible source of trouble is in the ignition unit where it sets in the engine. Usually the whole interrupter housing is rotated slightly in order to advance the spark and when this is done old grease sometimes acts as an insulator so that the ignition unit itself is poorly grounded. It might accordingly be well to try a ground wire running from the ignition unit to the frame of the engine. When using the test lamp to see what voltage you are getting in the coil, you might also try it when the starter is operated. It is possible that the terminals at the battery are corroded but in most cases this will prevent the starter operating before it will affect the ignition system.

Coil Left Over Is a Dead One

Q. Would like to get a wiring diagram of the armature of a Westinghouse generator, frame No. 50586, third brush type with cutout enclosed in end plate, such as was used on Metz car, I think in the year of 1919, rotation anti-clockwise from armature end. The armature has 21 slots and the commutator has 41 bars, with a slot back pitch of 6 I think. This armature was duplex wound with a wave connection. This armature has been re-wound by some electrician before being brought to my place with the winding as described and ends all ready to solder in place. The commutator has evidently been repaired and you will see that I have 84 ends of wire and only space for 82 of them. I am inclined to suspect that a bar has been left out of the commutator.—Washington Subscriber.

The diagram is shown in accordance with your request. The explanation of the commutator bar which seems to be missing is that one of the coils is known as the dead coil and is not connected anywhere. Its two ends are merely taped up and buried in the winding somewhere and the coil is used in order to balance the armature mechanically. The use of an odd number of bars, in this case which is 41, is doubtless for the



purpose of getting better commutation. Commutator bar No. 1 is in line with slot No. 1. There are five turns in each coil, the wire being No. 17, D.C.C. (double cotton covered). The details of connections are evident from the diagram. In connecting this armature, you can start connecting it as shown in the diagram and proceed to the right until you have finished, when you will find that one coil is left over. This can be the dead coil, its exact position electrically being of no great importance.

Bendix Tooth Chamfer and Back Lash Prevent Sticking

Q. Advise correct valve timing for a Chandler 1921 model.

The exact timing is not available but you will have it approximately correct if the exhaust valve closes when the piston has gone up on dead center and has just come down about $\frac{1}{16}$ inch. Due to the fact that you can only change the timing an amount equal to one tooth you will probably get the timing exactly right by working on this basis, for a change of one tooth either way will put it far enough off so that the mistake would be readily detected.

Q. Advise regarding starter sticking in flywheel. We have put on a new steel ring gear on the flywheel but the starter pinion still sticks and is hard to break loose.—A. J. Winter, Winter & Hay, 1725 Fourth avenue, Rock Island, Ill.

For best results with bendix drive the pinion should be a very loose mesh with the flywheel teeth. This means it should have a back lash of from $1/64$ to $1/32$ inch and in cases where the pinion continually jams in the flywheel teeth it is usually found that the starter is located too near the center of the engine. In some cases it is possible to file out bolt holes and otherwise relieve the situation so that the starter can be pulled out from the flywheel a slight amount. Another essential condition is to have the pinion free on the spiral shaft. Except where the pinion runs in oil all the time no lubrication should be used as it merely gums up the operation and prevents the pinion spinning freely into mesh. Another possible cause of trouble is having the teeth chamfered the wrong way. The

chamfer should all be at one side of the tooth and this should always be the left side of the tooth as viewed when sitting in the drivers seat and looking toward the front of the car. This means that the right side of the tooth on top of the flywheel is longer than the left side because of the bevel or chamfer. In the same way the teeth on top of the pinion should have the long side at the right.

VALVE TIMING OF LIBERTY

Q. Give the valve and ignition timing of a 1920 Liberty, model 10-C.—Arthur H. Brown, R. No. 4, Box No. 259, Battle Creek, Mich.

The intake valve opens eight degrees past upper dead center and closes forty degrees past lower dead center. The exhaust valve closes six degrees after upper dead center and opens forty-five degrees before bottom dead center. The ignition should be timed so that with the spark advance lever in the retard position the interrupter points just begin to separate when the piston has come up to its top position and has then gone down about $1/64$ in.

CHEVROLET BODY ON FORD CHASSIS

Q. Is it possible to install a 1923 Chevrolet coupe body on a 1924 Ford chassis and if so will the Chevrolet fenders, hood and radiator also be suitable?—Felix E. Julius, Stockton, Ill.

We understand that the Chevrolet body can be applied without much trouble. We believe that the fenders will also go on easily. When it comes to the radiator and hood however, you may have to make minor changes in the mounting in order to adapt the new parts to the Ford chassis.

Ford Magnets May Need a Tonic

Q. We have a Ford runabout of model just before the self starter, having the $\frac{3}{4}$ inch magnets. It has just been overhauled very carefully and the space between flywheel magnets and magneto coil is very close and without a bit of play. The car runs perfectly in the daytime but when the headlights are turned on it misses badly. The lights have just been re-wired and there is no short circuit and no leakage. We are using a 9 volt, 18 c.p. bulb in each headlight, these being standard Ford bulbs. We have also tried the small socket called Bright Light in the right hand headlight which gave some improvement but did not remove all the missing. Would it be better to remove these bulbs and put in the 6 volt bulbs, such as were used on the magnets of the year 1914? Would these bulbs stand the voltage when car is running fairly fast? Would you advise installing the attachment called the Brite-Lite coil, to save the lower voltage bulbs, or to remedy the missing in the motor?—Jesse L. Felger, Pheba, Mississippi.

You do not mention having the magnets recharged and it is possible that in overhauling the motor you had the flywheel away from the coils so that the effect was the same as having the magnets with the keeper off. If this is the case it will probably do some good to re-magnetize the magnets without taking the engine apart. Instructions for doing this are being sent you by letter and we believe this will overcome the difficulty. Would be glad to hear from you again however, if results are not entirely satisfactory. Our recommendation is to continue with the standard Ford wiring which requires a 9 volt bulb in each headlamp and uses series lighting with the current from magneto going through first one headlamp and then the other headlamp to ground.

TIMING A SLEEVE VALVE ENGINE

Q. We would like to have if possible the correct timing of the valves in a 1920 model R Hupmobile.

The intake valve opens 12 degrees after top dead center and closes 44 degrees after bottom dead center. The exhaust valve closes 12 degrees after top dead center and opens 44 degrees before bottom dead center.

Q. We would also like to have the timing of a 1917 Moline Knight. D. J. Muekler, Grinnell, Iowa.

To properly time this engine it is desirable to remove the exhaust manifold and put a light of some sort in the cylinder. A small light can be used at the spark plug opening. The engine should then be turned over by hand until the piston comes to its top dead center position. At the same time the opening of the exhaust port can be observed. This opening should just close when the piston has reached its top dead center position and has barely started down being approximately $1/64$ in. down from the top.

When Two Rings Are Not Enough

Q. We have a Continental motor six cylinder, $3\frac{1}{4}$ by $4\frac{1}{2}$ in. stroke. This motor starts easily and runs fine but uses an excessive amount of cylinder oil and we thought possibly it was leaking out the crankcase in some way but we ran the engine over twenty minutes with the car standing still and there was no evidence of leakage. We then thought it possible that the oil was coming up past the piston rings, but the plugs show that this is not the case. The engine operates for from 6 to 8 months without ever requiring change of the plugs. Will you advise where the oil is going and how to prevent it? We are thinking of having new pistons and rings put in and the cylinders reground. Do you think it would be advisable to have three rings in each piston instead of two rings as at present?—Lewis E. Pierce, Key West, Fla.

In spite of the fact that the plugs continue to function it is probable that an excessive amount of oil is working up into the combustion chamber. This is also indicated by the fact that you say the piston only has two rings. This practice is used frequently in racing engines but is not desirable in stock engines. We believe that the overhaul job you suggest where the cylinders will be reground and new pistons fitted will take care of this condition and we agree with you that the three ring piston would be the best to install. At the same time that you do this you might make some provision for supplying an oil scraping ring together with means for allowing the oil to get through the piston and drain back into the crankcase. This should overcome the trouble you are having.

RUSTY HINGES SPEED UP THE ENGINE

Q. In your Readers' Clearing House of August 21, 1924, the Van Buskirk Garage of Alta, Iowa, are asking for information on the Remy generator regulator on model D Moline tractor. As we have had a good deal of experience with this regulator it seems as if we can offer a few suggestions which will prove helpful. The information that you gave them will be

all right if everything on the tractor is O. K. On some of the tractors, however, we found a peculiar condition. Referring to the wiring diagram on page 42 of the Moline instruction book, you will see that one end of the field winding comes out at terminal F. This is the inside terminal when the generator is in place on the tractor. A wire then runs from this terminal to the control box and the circuit to ground is completed through the resistance in the control box. In some cases, however, this circuit to ground is not completed, due to the fact that the control box is not making a good connection with the main body of the tractor, so that the generator does not build up and it leaves the carburetor wide open. A good way to tell if this circuit is incomplete is to set the control on 4 or 5 and if the motor races, short circuit from terminal F on the generator to ground. Then if the generator is O. K. it will close the carburetor at once.—O. R. Hamer, Primghar, Iowa.

MOTOR AGE wishes to express appreciation for this suggestion. In case the trouble is found to be as above indicated it could doubtless be corrected by soldering a wire to the control box and then to the main frame or ground of the tractor, so as to carry the current past the rusty hinges.

HOT STUFF FOR COLD DAYS

Q. Will you kindly tell me whether there is any objection to using alcohol testing 199? There is another alcohol testing 130. The latter they call denatured alcohol. Do you think the 199 proof, mixing one-third water is too strong to use in the radiator? Does it have any effect on the metal parts? Is there a difference in the alcohol? The 199 proof would appear to us to be wood alcohol and we would like to have your honest opinion before using it.—John Monroe, Allentown, Penn.

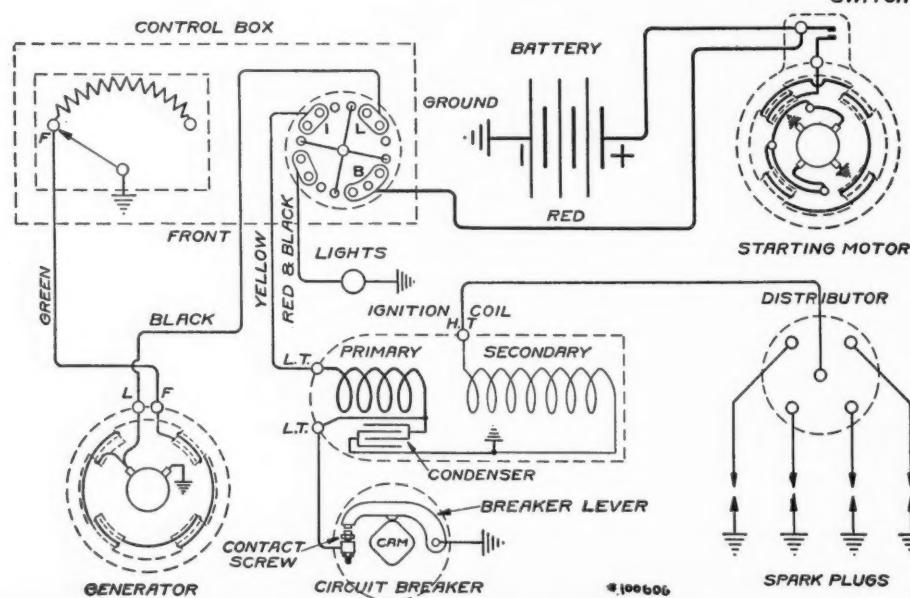
We understand that the best distilled alcohol is known as 192 proof. We further understand that 190 proof is slightly heavier being not distilled to the same extent and is used for such purposes as mixing shellac. 188 proof, which is still a little heavier is the denatured alcohol commercially used for such purposes as automobile radiators. All of these numbers apply to denatured alco-

hol. We understand that the 130 proof is denatured alcohol which contains a certain amount of water. Wood alcohol is similarly rated, the commercial variety being known as 188 proof. For use in automobile radiators the 188 proof either wood or denatured alcohol would be satisfactory and we never heard of alcohol in an automobile causing any trouble as long as it was confined to use in the engine cooling system. A solution of half and half wood alcohol and water is safe from freezing at 40 degrees below zero, while a half and half solution of denatured alcohol is safe to about 33 degrees below zero.

Changing 12-Volt Maxwell to 6-Volt

Q. We have a 1920 model Maxwell which has a model S. M. S. 12-volt generator and starter No. 289000. We would like to change this to use 6-volt battery instead of 12-volt. Advise if this can be done and if so send a diagram at once. We do not care especially to use the starter but wish to use the generator to charge the 6-volt battery for lights and ignition.—Fye Motor Co., Ollie, Ia.

We believe that the generator you have is a 12-volt machine which operates as a 12-volt generator and a 12-volt starter also. Also if our information is correct this is a five-brush generator, the fifth brush being connected to one end of the shunt field, operating in the same general way that a third brush does on a Ford car. We believe that the cut-out on this machine is attached to the generator. If this is the case the machine is hardly suitable for operation on 6 volts, although you can easily make the experiment and see what the results will be. Just connect a 6-volt battery in place of the 12-volt battery and run the engine and see what happens. In doing this it would be well to close the cut-out points by hand when the engine has started and then increase the speed of the engine somewhat. The difficulty which may be encountered will be due to the fact that the machine is connected to 6 volts instead of 12 and the voltage on the shunt field will be accordingly reduced so that the output may be too low. However, you can experiment by shifting the adjusting brush first one way and then the other to see if a suitable charging current of from 6 to 10 amperes can be obtained. If the charging current is sufficient then you can assume that the generator will be satisfactory in spite of the fact that it is designed for 12 volts. You may then find that it is necessary to change the cut-out, installing a regular 6-volt cut-out such as would be used on any 6-volt system. In installing a 6-volt cut-out the base or frame of the cut-out will be grounded while the battery terminal must be connected to the wire which goes to the ammeter and the other terminal usually marked Gem, should have the wire from the generator connected to it. If after making these experiments you wish any additional information we will be glad to hear from you again.



Wiring of Remy Generator on Model D Moline Tractor

BOOSTING ACCESSORY SALES

WINTER sales of accessories should be exceptionally good this year. Car owners are going to drive their cars as long as weather permits and then some. Windshield wipers, covers for tires and exposed parts, locks and bumper equipment are only a few of the things which will find a ready market with the winter driver.



Thorn automatic windshield wiper

Special Padlock Covers

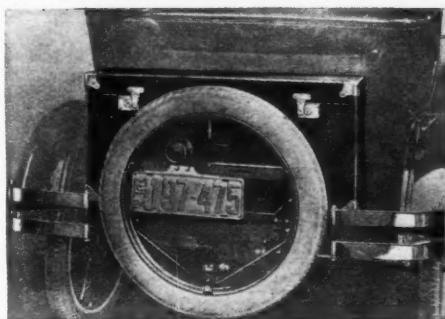
These are made for padlocks in order to protect the fine finish of the car from scratching or chipping, to keep dust and dirt from the lock mechanism, prevent rattling and minimize the danger of anyone tampering with the lock. Covers are made of fine grained pliable leather with a snap, and also of rubber. They are made by the Miller Lock Co., Philadelphia, Pa.



Miller padlock cover

Thorn Automatic Windshield Wiper

A new model of automatic windshield wiper has been announced by the Thorn Machine Tool Corp., Syracuse, N. Y., which it is claimed can be quickly installed. The Thorn is a vacuum type automatic windshield wiper and operates by suction from the intake manifold or vacuum tank. Installation is made by inserting the shaft through the hole already drilled in the windshield for a hand wiper. A hose is run from the vacuum tank or intake manifold, which ever is used, to the windshield. For



Imco trunk and bumper equipment for Fords

use with the former a special connection is provided which simplifies the operation. The price of the wiper is \$5.

The Vacularm

The Vacularm is a warning device used to tell the driver of the car when the gas in the tank is getting low and also to indicate the regularity with which the vacuum tank is functioning. When but three gallons of gas remain in the main tank, the vacularm makes a connection which blows the horn. Operation of a knob on the instrument is used to stop the horn blowing. Then if gasoline is not obtained the horn again blows when only two gallons remain, the same thing being repeated and the signal again operating when the supply is down to one gallon.

Another feature is a flag in a window at the bottom of the dial. This normally shows white but flashes red at every operation of the vacuum tank float, the red signal being visible for from three to eight seconds. Normal operation of the system is thus indicated by the regularity with which the red signal appears. Air leaks are indicated by fluttering of the flag, while partial stoppage in the gasoline line causes the red signal to remain visible longer than normal.

The device is made by the Smith Motor Equipment Co., 1930 W. 77th street, Cleveland, Ohio.

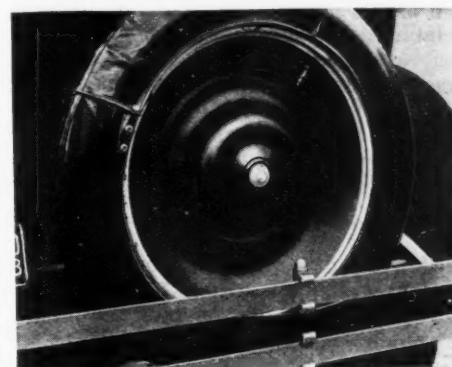
Imco Trunk and Bumper Equipment for Fords

The Imco equipment consists of a steel trunk finished in baked black enamel with nickel trimmings and nickel plated rear bumpers or fender guards. The trunk dimensions are 38x18x11 in. The cover attaches to the body of the trunk by a piano hinge extending its entire length. Rubber strips along the front and ends of the cover make the trunk water and dustproof. The top edges of the trunk are rolled back to give a smooth edge and greater rigidity. Two locks are provided. The rear panel of the trunk has three crimps in it to give it greater stiffness. The trunk and bumpers are supported by an angle iron frame

which attaches to the side rails of the Ford car. The equipment includes all parts needed for installation and is packed complete in an individual carton. The maker is the Ireland & Matthews Mfg. Co., Detroit, Mich.

Combination Cover Plate and Lock

Announcement is made of a new model combination cover plate and wheel lock for spare steel wheels by The Oakes Co., Indianapolis. The cover plate is a pressed steel stamping finished in black enamel. The concealed lock face is a highly polished aluminum die casting, fitted with a four-pin tumbler. These fit together over a protruding stud through the back plate and cover the studs used to hold the steel wheel against the plate itself. In order to remove the wheel all that is necessary is to unlock and remove the lock face, remove the locking nut and then the cover plate. If desired the cover plate can be furnished in polished aluminum.



Combination cover plate and lock

Fargo Ash Receptacle

A combination cigar lighter and ash receptacle is being offered by the Fargo Co., Inc., Ripon, Wis. Installation is made in the dash and the price of both is \$10. The lighter separately sells for \$5. The De Luxe Universal model, it is claimed, can be installed in combination with any electric cigar lighter now on the market.



The Vacularm

GETTING MORE OUT of the SHOP

THE vital tool for properly applying lacquer finishes to motor car bodies is a spray gun. Lacquer or nitro-cellulose base materials differ from any other form of finishing materials both in action and application, not having the flowing qualities of other materials. Therefore, they can be applied only in an atomized state. This means some form of controlling device—a spray gun in other words, operated by air pressure. A gun of this kind known as the Binks 105 Gun made by the Binks Spray Equipment Co., 3114-28 Carroll avenue, Chicago.

The general design and construction of the Binks No. 105 gun is such that its superiority for successful lacquer application can be seen at a glance. With the first pull of the trigger—a blast of clean air sweeps all dust and foreign matter off the surface to be coated. A further pull of the trigger produces a flat, fan-form spray which can be either horizontal or vertical, as well as round, by instant adjustment. Sprays are from a narrow, to a broad width, and a round spray is permitted for retouching or special needs as close as $\frac{1}{8}$ inch wide. That the atomization takes place at the immediate outlet of nozzle permits close operation of the gun to surface, placing lacquer intact with no chances of losing important solvents by evaporation, which happens when a gun is operated too far away.

To operate one Binks No. 105 gun it requires an air compressor having a capacity of approximately 7 cu. ft. of free air per minute. To operate more than one gun, a larger unit becomes necessary.

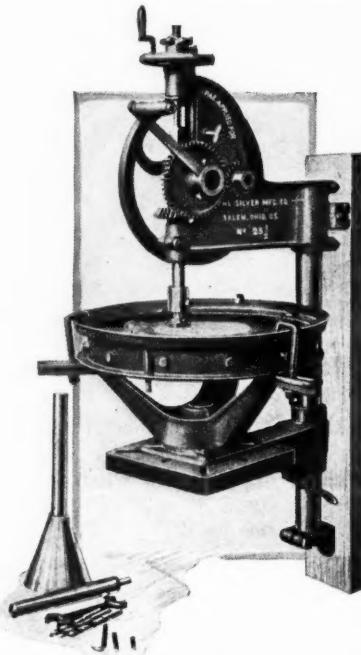
All compressors are of the air-cooled type and furnished with controlling splash oiling system.

All air receivers furnished are substantially built of steel and are guaranteed to stand a working pressure of 150 lbs. and test pressure of 300 lbs.

The Binks equipment for motor car finishing is sold in various combinations. Outfit No. 8, for example, consists of one



Binks spraying equipment



Silver wheel machine

gun, a 1-qt. attachable syphon feed container and 25 ft. $\frac{1}{4}$ in. air hose and connections. It sells for \$34. Outfit No. 11 includes the first two items and 15 ft. each of air hose and metal lined material hose and connections; a material pressure container with 2-gal. inner receptacle; 25 ft. air hose and connections and an oil and water extractor. The price of this outfit is \$104. For larger needs of equipment and installation the company is prepared to furnish layouts and estimates on application.

Manley Service Runway

In order to facilitate operations which necessitate elevating the car the Manley Manufacturing Co., York, Pa., has brought out a runway which is of an all-steel construction and furnished in two sizes to take care of cars with standard and balloon tires.

It is 30 in. high, resting upon angle iron legs, and thoroughly braced. The floor of the Standard runway consists of two channels, 14 ft. long and 8 in. wide. The floor of the Special runway consists of two channels 15 ft. long and 10 in. wide, and also has 12 ft. inclines.

Each end of the runway is composed of two pieces of angle on either side. These are tied together by additional pieces of angle iron. At the bottom they are bolted to cross members, extending the entire width of the runway. The lower tie piece forms a base with a wide surface, eliminating the necessity of blocks or foundations. The legs are assembled, and shipped as a unit, so it is only necessary to place the channels upon the legs and bolt them down.

The runway is built so the approach can be made from either side. When only

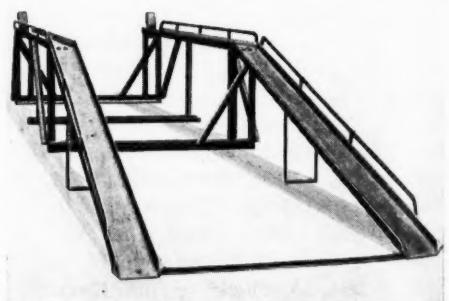
one approach is used, heavy chocks are provided to prevent the car from running off the end. All runways are equipped with guard rails. These guard rails make it practically impossible for even a poor driver to run a car off at any point. Due to the truss construction of the runway it is not necessary to dig holes or build a concrete foundation. The runway can be placed on the ground anywhere.

Prices and weights of the runway are as follows:

Single Incline Runway,	Weight	Price
with 8 in. channels.....	982 lbs.	\$ 86.00
Double Incline Runway,		
with 8 in. channels.....	1282 lbs.	112.00
Incline Only, with 8 in.		
channels	300 lbs.	28.00
Single Incline Runway,		
with 10 in. channels....	1220 lbs.	105.00
Double Incline Runway,		
with 10 in. channels....	1616 lbs.	140.00
Incline Only, with 10		
in. channels	396 lbs.	35.00

Silver Wheel Machine

A machine for quickly and accurately preparing wood balloon tire wheels for any make or model car has been brought out by the Silver Manufacturing Co., Salem, Ohio. This machine which in reality is a post drill, is fitted with a table and wheel holding device so that boring, chamfering, facing and drilling operations can be performed very readily. Holes for the hub flanges can be drilled by using the hub flange of the old wheel as a template. If spokes are to be faced to suit brake drums or flanges a rotary cutter is substituted for the boring arbor. The machine has a swing of $2\frac{1}{2}$ in. and the spindle has a run of 4 in. The spider for holding the wheels has faced bearings and revolves on a faced center to insure accurate work. The centering cone has sufficient range to center wheels having holes from $1\frac{3}{4}$ in. to $5\frac{1}{2}$ in. in diameter. The price of the outfit including two boring tools, chamfering tool, facing cutter, centering cone, 3 clamp bolts, double end wrench, and 3 drills $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{1}{2}$ in. is \$65. Less facing attachment is \$60. The price of an extension shaft with tight and loose pulley for power is \$5.



Manley service runway

EDITORIAL

Barred Highways

WE WONDER what highway builders are thinking about when they deliberately run an expensive concrete highway across the level of through railroad tracks. They are penny wise and more than pound foolish, for they are not only doing that which is more expensive in the long run, but they are also deliberately exposing to the hazard of death the thousands of men, women and children who use the highway for automobile transportation.

Every permanent highway that is constructed in this country should be separated at the crossings from railway tracks. It should go under or over the steel rails upon which mile-a-minute passenger trains and mile-long freight trains are constantly engaged in their important commercial enterprise. By careful survey before construction of a permanent road is undertaken the number of such crossings should be reduced to the minimum and then the first item of the necessary cost of the road should be set down for avoidance of grade crossings.

Road building now is largely in the hands of state and Federal Governments. Thus the way is cleared for a definite and hard-fast policy on this important matter of life or death. Let the Federal Bureau of Good Roads refuse to approve any project for a permanent road to be constructed with Federal aid which does not provide for viaducts or underpasses at railroad intersections. State and Federal Governments have it within their power to compel the railroads to bear a share of the cost, if they will not do it willingly as they should.

The economic cost of grade crossings, not considering the loss of life, is stupendous. With traffic burdening many of the highways almost to capacity the passage of a long freight train results in delay that is both provoking and costly to the users of the road. Where the passage of trains is frequent this becomes an almost intolerable condition, and where the passage of trains is not frequent it is most dangerous. Nothing would help quite so much to expedite through automobile traffic on improved roads as elimination of grade crossings. As traffic increases from year to year the saving in dollars to the users of motor cars would be enormous. The saving of life would be a humanity worth more than the cost. It is true that grade crossing accidents are largely due to carelessness of the drivers of motor cars, but that does not alter the obligation of the state to prevent all unnecessary hazards.

This is a matter of profound importance to the future of automotive transportation. Roads are being built and they are being laid like playthings in front of onrushing trains. Here is a matter that every automotive trade association in the country, every safety council, every motor club, every chamber of commerce, should immediately take up and agitate until the separation of grade crossings is an accepted principle of road building.

Painless Price Advances

THE public hardly realizes it, but automobile prices are going up. The announcements of new models this year almost invariably have been accompanied by price revisions which were little noticed along with the stir that the new vehicles themselves created.

This is, no doubt, as the manufacturers intended. Conditions were such that in most cases the old prices were no longer sufficient to yield a profit. Prices were extremely low as compared with other commodities, and yet if the public had continued to absorb new cars at the rate of last year the old prices might have been continued.

Now as the new models come out new price lists are issued. Nothing is said about the old prices and it is only by careful comparison with old lists that the upward tendency is noted. Changes of design and equipment are relied upon by the manufacturers to add value to the cars which will justify the price advances.

When increases in price are necessary this method undoubtedly is the best that could be used to put them into effect. There is nothing offensive about it and it leaves the buyer of the superseded model with the feeling that he has obtained a bargain. In fact, this method of adopting price advances should be of great advantage to the dealer in disposing of stocks of the old models. The purchaser can be shown where he is saving money and still getting a car of high value.

A Creed for Battery Shops

IT can truthfully be said that a man's worst enemy is himself and it might be said that his worst competitor is also himself. Many dealers in storage batteries do not believe this. They feel that Jim Smith up the street, selling at a discount, and Sam Jones across the bridge, giving free test service, are making competition that is hard to combat. Therefore Smith and Jones are enemies, to be treated as such.

Much competition, however, exists right in the battery man's own shop, and a number of points brought out in a creed drawn up by the Universal Battery Co., for its dealers and others shows up this internal type of competition. Dirt and Junk mixed in with new parts, and the whole mess scattered here and there will send more customers to the other battery shop than all of the other fellow's well baited ads. Lack of courtesy, knocking other batteries and deceptive claims for one's product also produce a lack of confidence that reacts against the shop where such methods are used. Thus the creed emphasizes cleanliness, courtesy, fairness and honesty in addition to the business practice of charging for service.

It shows also how co-operation will serve to solve problems for the whole battery business in any town. It makes possible the interchange of credit information, promotes the passage of laws and ordinances to protect the dealer against theft of rental batteries and broadens the dealer's point of view. It is an objective worth working for.

Accessories or Necessities

YOU may be engaged in the sale of "automobile accessories," along with other activities of the automotive business. Suppose you change your point of view and say that you are engaged in the sale of "automobile necessities." It will be literally true and you will find it lots easier to sell necessities than accessories.

Take tire chains, for an example. Why look upon them as accessories? There is no more important automobile necessity under modern driving conditions than a good set of tire chains. They mean safety and security and no car should be without them. Every automotive merchant should urge their sale, not as an accessory but as a necessity. It is the same with many other articles that we have been in the habit of calling accessories.

It's largely a matter of psychology with the car owner. If you get him in the right mental attitude your work in "selling" him will be very materially facilitated. Once convince a man that he absolutely needs the article you are trying to sell him, the sale is as good as made.

Spotty Conditions Found in Production

Some Plants Operate on High Schedules, Others Feel Lull

Large Ford Output Should Put This Month Past August If General Curtailment Is Not Great

NEW YORK, Sept. 22.—Failure of sales volume to increase in keeping with anticipations is likely to halt any contemplated movement forward in automobile production schedules. Unless there is improvement in demand before the end of the month, there probably will be some curtailment in operations. If this curtailment is not great, September output of cars and trucks will reach or surpass the August figure, owing to the increase in Ford production.

Conditions are not alike with all producers. A few manufacturers continue on high schedules, with operations close to capacity, but the majority are experiencing the usual September lull in demand with no upward swing from the level maintained during the summer and, in keeping with their policies, are regulating their production programs accordingly. Ford is an exception to the general situation, reports indicating a steady increase in retail sales.

Parts makers are reporting somewhat better business but there are no strong expectations that the improvement will reach any marked proportions before the beginning of the year. Their operations will depend upon the retail sales reports reaching car and truck manufacturers. There has also been some improvement in demand for steel sheets, its continuance likewise depending upon retail sales of motor vehicles.

Conditions Vary

Sales conditions vary in different sections of the country. Reports are received from some districts that there is a pressing demand for cars with a resultant increase in dealer orders. One maker describes business in the Central West, including states between the Mississippi and the Rocky Mountains, as particularly good. On the whole, however, business is being held back either by local conditions or the general economic situation. The latter is regarded as a ruling factor.

Dealer stocks continue at a low point and tighter lines have been drawn on manufacturing operations both for the present and the future to guard against the overstocking condition of the spring. The attitude taken by General Motors of balancing production and sales is being adopted by other producers and similar policies are being put into effect.

NEW LINCOLN SALES PLACE

SACRAMENTO, Cal., Sept. 22.—Goodrich & Ballard, Sacramento, will shortly occupy their new building at 1516 K street, where Lincoln cars will be handled exclusively. Their Ford business will continue at 7th and M streets.

August Hupp's Best Shipping Month Since April Record

Undersupply of Cars in Hands of Dealers With Production Practically at Full Capacity

DETROIT, Sept. 20.—Shipments to distributors and dealers by Hupp Motor Car Corp. were 30 per cent larger in July and August than in May and June, and 27 per cent higher than for July and August last year, according to a factory statement. August was the largest Hupmobile shipping month since April, the company states, and more unfilled orders were carried over into September than in any month since August, 1923. Unfilled orders as of August 31 were three times larger than of July 31.

Demand for Hupmobiles has increased with remarkable rapidity in the past few weeks, said O. C. Hutchison, general sales manager. Seven orders out of every ten received at the factory are coming in by telegraph or long distance telephone, indicating, he said, that there is an immediate need for cars to fill orders actually on file with the dealers.

Stocks of cars in dealers and distributors hands are less than two and one-half cars each, the factory declared, which means there is an undersupply of Hupmobiles. Every indication at the factory is that all cars shipped are being delivered to owners upon being unloaded from freight cars. As result of this revival in retail business, Hupp manufacturing operations are being conducted at practical capacity.

Closed car output is slightly in excess of open models, the company states.

S. A. E. GUESTS OF YELLOW CAB

CHICAGO, Sept. 19.—Sixty members of the Chicago and Milwaukee sections of the S. A. E. with their friends today, were guests of the Yellow Cab Manufacturing Co. on an inspection trip through their factory. Officers of the company accompanied the party, pointing out features of interest from a production and design standpoint. After seeing how buses and cabs were made, the party had dinner in the company cafeteria and then listened to brief accounts of the rapid rise of this unusual manufacturing business and some of the events that led this concern to specialize in this way.

Maxwell Motor Makes Awards in Big Retail Sales Contest

First National Prize, a Chrysler Brougham, Given to Pierce Hettinger of Reading, Pa.

DETROIT, Sept. 22.—Winners in the Greater Retail Sales Contest conducted by Maxwell Motor Corp. were awarded prizes at a factory gathering held here. The contest extended over a two months' period and carried prizes amounting to \$30,000 to about 200 winners. The winners of the first ten prizes received about half this amount.

Pierce Hettinger of Reading, Pa., was the winner of the first national prize—a Chrysler brougham valued at \$1,895. The other national prize winners were: W. A. Solomon, Montpelier, Vt.; R. F. Baruth, Manitowoc, Wis.; A. A. Mock, Shamokin, Pa.; Thomas Bennett, New Britain, Conn.; A. W. Case, Albany, N. Y.; Louis Wenzel, Waterbury, Conn.; W. H. Huffman, Cleveland, and J. E. Higgs, Pittsburgh.

G. R. Vollmer, Pittsburgh, who won the class A prize for retail sales managers; Robert Starr, Milwaukee; J. Leo Johnson, Montpelier, Vt., and J. J. Collins, Waterbury, Conn.; representatives of prize winning teams, were among the winners who made up the party visiting the factory. Three of the national prize winners were unable to attend.

J. E. Fields, vice-president in charge of sales, presented the prizes. According to Mr. Fields, the contest just held was the most successful in his experience. Practically every distributor and dealer in the country was represented by one or more salesmen.

Walter P. Chrysler, president and chairman of the board of directors, took an active part in the factory reception of the prize winners.

ISSUE NEW A. E. A. CATALOG

CHICAGO, Sept. 22.—The Automotive Equipment Association has issued the second edition of its uniform catalog of the automotive products of its manufacturing members. The new volume is known as catalog B and is intended for the use of automotive jobbers. It has more than 700 pages and has both a commodity and a manufacturers' index. Products have been grouped according to their nature, which means in some instances that the various products of one manufacturer are scattered through the book. A uniform style has been followed in the compilation and illustration of the pages. The catalog department of the A. E. A. will supply reprint sheets for use in jobbers' catalogs upon authority of the manufacturers concerned.

Excise Tax Interpretation Sends Delegation to Capital

Commissioner's Understanding as to Automotive Sections Clashes With That of Industry's Leaders

NEW YORK, Sept. 20.—In the opinion of most of the leaders of the automotive industry the regulations framed by the Commissioner of Internal Revenue interpreting the meaning of the excise tax laws as adopted by the last Congress differ radically from the intent of the measure as they understand it.

As a result of this belief a delegation will visit Washington next Tuesday for a conference with Treasury Department officials in an effort to secure interpretations more in keeping with what the automotive industry believes Congress had in mind when it undertook to give partial relief to makers and users of automobiles and accessories.

In this party will be Alfred Reeves, general manager of the National Automobile Chamber of Commerce and R. A. Brannigan of the patents department of the same organization, and M. L. Hemmings, general manager of the Motor and Accessory Manufacturers Association and Herman Douster, traffic manager of the same body. There is a likelihood of other associations being represented, including the American Automobile Association, speaking for the users.

First copies of the regulation reaching New York City were eagerly read. In the analysis that followed there was some alarm felt at first because of the wording of the article governing the tax application applying to makers of trucks selling \$1000 and under and truck bodies selling at \$200 and under. As the clause read it might be interpreted that in the case of manufacturers buying the parts that entered into the manufacture of their product that the 2½ per cent tax would have to be paid, but with a manufacturer like Ford who builds his own parts for his trucks that such trucks would be tax exempt.

Inquiry at the office of the Revenue Department in Washington by an N. A. C. C. representative however, relieved the minds of the men of the industry, for the department, while admitting that such a construction might be placed on the article, declared that such discrimination would not be made, and that such parts would be tax exempt.

One other article, 16, disturbed the Motor and Accessory Manufacturers Association, because of its possible effect on battery manufacturers. This section holds that parts and accessories primarily adapted for use in connection with trucks and other automobiles when sold by the manufacturer are taxable regardless of the ultimate purpose for which they are intended. In other words, it was thought that the law meant that parts and accessories sold for non-automotive purposes were to be tax exempt. Under the ruling, this apparently is not so and it is feared that inasmuch as about half of the battery production has gone to the radio industry that the regulations will financially disturb the battery people. This fear is based on the fact that since July 3, when the new law went into effect, battery makers have not collected taxes on batteries sold for non-automotive purposes.

DETROIT, Sept. 22.—Chevrolet Motor Co. is now in production of a new coach model which lists at \$695, the body of which is by Fisher on the regular Chevrolet chassis. The body construction conforms to that in other Chevrolet closed models, with all panels in steel, and is finished in black with gold stripe.

Door openings are 29 inches wide, with rear quarter windows of the same width as the door window. The drivers seat is stationary with a folding seat to the right and the rear seat is for three persons. Upholstery is taupe wool cloth. Floor carpet matches the upholstery.

Windows are operated by Ternstedt regulators. There is a dome light and a satin curtain is mounted on the rear window.

Court's Permission to Sell Columbia Co. Will Be Sought

DETROIT, Sept. 20.—Following appointment of Security Trust Co. as trustee in bankruptcy for Columbia Motors Co., representatives in court this week stated that the trustee believes it advisable to sell the plant and property immediately that the expense of maintaining it may be terminated as quickly as possible. The referee and creditors concurred in this opinion and application for permission to sell is expected to be made to the court within a few days.

The appointment of the trustee in bankruptcy followed its appointment recently as receiver in bankruptcy. The inventory and appraisal of the property filed by the trust company showed assets under inventory to be \$1,962,505.25, which was reduced by the appraisers to \$997,455.16 as the sound value of the property as a going concern. Statement of assets and liabilities prepared by the receiver showed liabilities to be \$863,559.64 without giving effect to any capital liabilities or the commitments of the company.

Commitments for materials, supplies, etc., are indicated by the receiver to be approximately \$785,000.

APPOINTED BY REPUBLIC

DETROIT, Sept. 22.—Republic Motor Truck Co. Inc., has appointed Robert S. Taylor as distributor in Seattle, Wash.

Direct Dealer Plan Adopted for Star and Durant Sales

Distributor System Abandoned in Belief Territory Can Be Covered Better by Other Arrangement

NEW YORK, Sept. 22.—A change in sales policy has been made by Durant Motors, Inc., which has resulted in the abandonment of the distributor system and the adoption of direct dealer selling connections for the Star and Durant at all centers of population. The latter will be under the direction of wholesale offices, which in turn will be under the control of Vice-President Colin Campbell, who is in charge of sales and production of Star and Durant cars.

Already eleven of these wholesale offices have been established—at Atlanta, Ga., Boston, Cincinnati, Chicago, Dallas, Texas, Denver, Elizabeth, N. J., Kansas City, Mo., Philadelphia, Pittsburgh, St. Louis and Lansing, Mich.—all of them being east of the Rockies. At a few points the old distributorships continue in force for the time being because of local conditions which require some time to work out.

While most of the distributorships have been cancelled, a majority of the old distributors have continued as direct dealers, operating in and around their various cities and in accordance with the new Campbell policy.

In his new work Mr. Campbell is bringing with him the policy he developed when with the Chevrolet company—that of direct dealer representation. Mr. Campbell believes that direct selling connections enable the manufacturer to be sure that every square mile of territory is covered with selling and maintenance facilities, which, he believes, is essential in marketing low priced transportation, the low prices of which are based on volume.

In making this change, Mr. Campbell announces that production schedules are and will be based on a careful study of the retailing power of the dealers and that there will be no overstocking of the retailers. A new selling memorandum which has been adopted provides for alterations of shipping orders on a material satisfactory basis to meet unexpected economic conditions.

Another new policy adopted by Mr. Campbell is the reduction in the number of body types and options, which he believes will simplify the work of the dealers and make for bigger sales.

CADILLAC AGENCY CHANGE

SPRINGFIELD, Mass., Sept. 20.—The Greenfield Cadillac Co. has taken over the business of the Mohawk Cadillac Co. in Greenfield, Mass. George E. Jenkins heads the new concern and J. W. Cobb, former head of the Mohawk concern, becomes treasurer. The establishment will handle the Cadillac and Hupmobile.

Progress Made in Promotion of Electrical Maintenance

White Sulphur Springs Meeting Reveals That Headway Has Been Made in Field Service

WHITE SULPHUR SPRINGS, Sept. 20.—When the four-day summer meeting of the Automotive Electric Association was concluded today at White Sulphur Springs it was the general consensus of the members and those associations participating as guests that considerable progress had been made in promoting better electrical maintenance in the field. That the manufacturers of electrical units in the equipment field are cognizant that many of the so-called service problems are not directly traceable to their doors was evident by the reports of the standards committee on lighting generators, starting motors and their relation to batteries.

The standards committee after extensive labors submitted reports which were adopted with minor changes by the association. The recommendations of the committee to the car manufacturers are such that if adopted cannot but greatly assist in more satisfactory electrical equipment operation for the owner and lessen maintenance problems for the service station. The committee stressed the importance of the battery's relation to the starting motor and the advantage of the use of the proper size, also the fact that damage to many generators results with too small a unit because the increasing the output of the generator, essential to keep the battery charged is one of the reasons for armature replacements.

Sub-Committee's Report

The report of the standards sub-committee on recommended practice as to installation and wiring was practically the same as has been discussed before. That dealing with the grounded frame recommends tinning the frame for the connection. The section relating to armored cable was stricken out after some discussion, it being held that while the cable was efficient careless installation brought forth trouble. Relative to fuses no recommendation of either the link or cartridge type was made but the S. A. E. standards were recommended.

There were two service papers presented by guests. One was by C. P. Shattuck, service editor, Chilton Publications, who spoke on "What Can Be Done to Promote Better and More Profitable Service." The speaker analyzed the car and truck registrations by states and the number of authorized stations in the various cities and towns and stated that service facilities must be expanded to care for the increase of motor vehicles.

B. L. Shinn, special representative, National Vigilance Committee, Associated Advertising Clubs of the World, pre-

sented a paper entitled "Are Your Returns from Advertising What They Should Be?" He made many constructive criticisms and pointed out the ill effects of the hammer true of copy. Guarantees in copy were also discussed.

Dodge Brothers Reduce Prices \$60 on 4 Special Type Cars

DETROIT, Sept. 20.—Price reductions of \$60 have been made by Dodge Brothers on the four special type cars included in its line, the reduction being made possible, the company states, by economies effected in the purchase of equipment used exclusively on the special type cars. The new prices are special touring car, \$996; special roadster, \$965; special A sedan, \$1,485; special B sedan, \$1,350; special business coupe, \$1,135, and special four-passenger coupe, \$1,475. Prices on the standard types are unchanged.

Commenting on the decreased prices the company says:

"Dodge Brothers special types consist of the standard cars equipped with accessories which produce the utmost in comfort and convenience and appearance of the car. Among these are steel disk wheels, five balloon tires, nickel-trimmed radiator, nickel-plated bumpers, automatic windshield wiper, rear view mirror, scuff plates, cowl lights and motometer with lock. A special body stripe is also provided.

"Manufacturing and buying these accessories in quantity, Dodge Brothers are naturally able to install them at prices considerably below what the owner would have to pay at retail. The public was quick to sense this and the demand for the special types grew steadily from the moment they were available. Their convenience and appearance has elicited the greatest admiration everywhere and those who know the volume that has been attained can readily understand how Dodge Brothers were able to make a reduction when others were announcing advances."

Motor Wheel August Business 90 Per Cent Same Month, 1923

DETROIT, Sept. 22.—Motor Wheel Corp. sales and deliveries in August were 90 per cent of the total in August 1923, according to a statement by the company. As the business of the company was at its peak in August last year, the banner month of the company's history, the showing made this August is regarded as satisfactory by directors.

As compared with business two years ago, August this year showed a 25 per cent increase. Releases for September, it announces, are larger than releases for August, and the outlook is declared favorable for a good fall business with all customers.

"Jobber as Retailer" Discussed in Forum at A. M. A. Gathering

Opinions of Speakers Differ on Point at Issue While Respects Are Paid to Gyp

CHICAGO, Sept. 22.—Finding better methods for supplying the wants of the motoring public, at the same time improving outlets for automotive merchandise, constituted the theme of discussion in forum at the first fall meeting of the Automotive Manufacturers Association last night. The meeting was held in the association's regular quarters at the City Club, the large attendance including a number of jobbers and salesmen who had been especially invited to be present.

W. M. Weber, president of the Chicago Automobile Supply House, the feature speaker, addressed the gathering on the subject: "What a Jobber's Buyer Thinks of a Manufacturer's Salesman." Later discussion touched frequently on the buyer's opinion of the manufacturer's salesman but the general drift of comment was more along merchandising lines.

Turn in this direction came early when one speaker asserted that improved methods of merchandising through the jobber should be found, his personal opinion being that the jobber should also maintain a retail organization. This brought up an old subject, the debate seeming to resolve itself into the question: "Should a jobber do retailing?"

Opinion among the speakers on this issue differed but there was unanimous agreement that both manufacturer and jobber can achieve a higher order of mutual benefit by greater co-operation. There was but partial agreement also as to whether the so-called "gyp" is a merchandiser. Several of the speakers took the position that the "gyp" is a good merchandiser while opinion was expressed that the "gyp" is decidedly a bad merchandiser. These same speakers disagreed on the point as to whether "gyps" are increasing or diminishing.

President Noah Van Cleef, who presided over the meeting, announced that 20 national manufacturers have been added to the membership in the past three months. It was also announced that the annual dinner and entertainment will be held on the evening of Nov. 11.

STOPS PITTSBURGH PLUS

WASHINGTON, Sept. 20.—The Federal Trade Commission has been notified that the United States Steel Corp. and its subsidiaries have abandoned the Pittsburgh plus system and will not quote or sell their rolled steel products upon any other basing point than that where the products are manufactured or from which they were shipped.

The action has been taken following the order of the commission issued July 22, which ordered that this system be discontinued.

They Made Motor Speedway History



Jimmy Murphy



Joe Boyer



Dario Resta

Jimmy Murphy, Killed Sept. 15 at Syracuse, New York, Called Greatest of All American Drivers

Was Third World-Famous Speedway Pilot to Meet Death in Less Than Month—Joe Boyer and Dario Resta Being Victims of Like Fates But Recently

SYRACUSE, N. Y., Sept. 22.—The death of Jimmy Murphy as the result of an accident on the State Fair Grounds track here Sept. 15, marked the third fatal mishap to world-famous race drivers within less than a month.

September 1, Labor Day, Joe Boyer sustained injuries on the Altoona track from which he died a few hours later.

Dario Resta was killed Sept. 3, while driving in a race on the Brookland track in England.

In addition to numerous other honors to the credit of these three men each had captured first place on the Indianapolis Speedway, Resta in 1916, Murphy in 1922 and Boyer in 1924. The series of tragedies has removed from the racing fraternity with a swiftness of which fate alone is capable three notable figures whose names had become almost a synonym of the modern sport.

It was on what is regarded as the safest dirt track in the country that Jimmy Murphy, greatest of all American drivers, met death here Sept. 15 during the 150-mile A. A. A. championship event which was the feature of the card at the State Fair Grounds.

With 138 miles finished, Murphy was traveling at 80 m.p.h. in an effort to pass Phil Shafer. When Murphy attempted to swing out of the first turn into the back-stretch his Miller Special failed to straighten up, clipped the inside rail, skidded and hit the fence a second time, while on the next skid he crashed into the railing, carrying away a section of the fence.

Car Did Not Overtake

The car itself did not overturn and it is thought that Murphy's injuries were caused by huge wooden splinters striking him in the chest. In a way, the accident was similar to the one that killed Bob Burman in the Corona, Cal., road race several years ago. Burman, as noted a driver in his time as was Murphy, hit a telegraph pole and the pole crashed on his head, killing him.

Despite the accident, the others were permitted to finish, the winner being Shafer in 1 hour, 54 minutes, 25 seconds.

with Bennett Hill second and Harry Hartz third.

Murphy came up from the ranks to the top of the racing ladder in nine years. As far back as 1915 his career goes. In that year he broke in as a mechanic for "Wild Bill" Weightman, the wealthy Philadelphian who then backed Eddie Rickenbacker on the racing circuit. Infatuated with racing, Weightman himself drove in the Vanderbilt cup race at the Panama-Pacific Exposition and in this race the future champion, Murphy, was the man in the other seat. And he proved to be a good one.

Annexed by Duesenberg

Fred Duesenberg took a liking to the boy and took him on a mechanic but it was not until 1919 that he got his big chance. That came during the Duesenberg attack on world's records at Sheepshead Bay in 1919, when at the last minute it was discovered that Eddie O'Donnell's arm, injured in a race, would not permit him to drive. Murphy took the wheel

of the little 183 in. Duesenberg and established world's records in that class for all distances from 1 to 300 miles.

Following this up with a win in his first big race at Uniontown, Pa., that same year, Murphy was established. With several notable victories in 1920 it was but natural that when Albert Champion decided to send the Duesenberg team to France to represent America in the French Grand Prix that Murphy should be nominated as one of the pilots. With Joe Boyer, killed at Altoona Labor Day, as his team mate, Murphy crossed the Atlantic and won the Grand Prix, being the first American ever to win a European racing event.

Wins Title of Champion

Fresh from his foreign invasion Murphy followed this up by winning the Indianapolis race in 1922 and at the end of the year he had scored so well in all events that he easily won the title of champion, awarded under the points system by the American Automobile Association.

While not so sensational as in 1922, his work in 1923 was brilliant enough to make him second in the championship fight, while he was going so good this year that he would have won the title hands down had it not been for his fatal accident. He needed only this victory to make him a certain winner. As it is, it is doubtful if any of the other pilots will outpoint him by the end of the season.

Race critics, looking back over the years, agree that no other American driver has won greater racing honors than the dead champion. In fact, they hold that he was the greatest driver of all time, a consistent performer always, a wonderful judge of pace and one who, up to today, had been singularly lucky in escaping injuries on the racing path. Murphy's home was Vernon, Cal., to which place his body was taken.

W. R. Angell Sees Chance For Exceptional Fall Business

Continental Motors Executive Thinks Organization's Production Schedules Augurs Healthy Season

DETROIT, Sept. 22.—"If conditions in the automotive industry continue to improve as they have in the past few weeks I look for an exceptionally good business this fall." This statement was made by W. R. Angell, executive vice-president of the Continental Motors Corp.

"I base this prediction on our Detroit production schedules," continued Mr. Angell. "Our August 1924 schedule was once and a half times greater than August 1923; our September schedule this year is double that of last year and for October the tentative schedule is three times larger than the same month last year. Figures like these certainly indicate the probability of a splendid fall business.

"And why shouldn't business be good?—the country on the whole is prosperous—the western and southern sections which have not been buying automobiles for several years, give promise of coming back strong, crops out there are in fine shape and the farmer will find a ready market for his products.

Large Cotton Crops

"In the south it is estimated that there will probably be a cotton crop of nearly 13,000,000 bales and with cotton selling around 23 to 25 cents, this should mean many new automobiles sold in the south this fall.

"The grain crop of 1924 will be larger by many millions of bushels than last year, with prices from 12 to 35 cents per bushel higher. As a result the farmer will be in a much better financial position than he has been in several years.

"Automobile dealers have no surplus stocks on hand and are placing orders with manufacturers for cars. This is evidenced by the increased orders that we are receiving from the manufacturers.

"Taking it all and all we are very well pleased with the prospects for a splendid business for the rest of the year."

NAME CANADIAN AGENCY

RACINE, Wis., Sept. 20.—Ajax Auto Parts Company, of Racine, manufacturers of Ajax Red Base Jacks, has appointed the James B. Carter, Ltd., of Winnipeg, to represent it in the provinces of Manitoba, Saskatchewan, and Alberta.

NEW WHOLESALE OFFICE

NEW YORK, Sept. 20.—Durant Motors has opened another wholesale office, this time in the Dixie Terminal building, Cincinnati. B. A. Rupprecht, formerly Chevrolet sales manager at Louisville, is in charge.

Used Car He Buys Is His Old One

ROCHESTER, N. Y., Sept. 22.—The world a small place—not only the world of men but also the world of motors.

J. D. McDonell, of Cleveland, a former resident of this city, recently bought a used car from the Mabbett Motor Car Company, Cadillac dealers here. After the purchase a sense of familiarity assailed Mr. McDonell and upon investigation he discovered that the car was one he had owned during his residence in Rochester, but which he had turned in on purchasing a new model.

Atlanta Association Lays Plans for Lively Sessions

ATLANTA, Ga., Sept. 22.—The Atlanta Automobile Association will resume its merchandising meetings again the latter part of this month, it was decided at a recent meeting of the directors, and plans are going forward to make the coming fall and winter one of the most progressive in the history of the association.

During the past summer the Atlanta organization has grown considerably in membership so that now nearly 95 per cent of all dealers in the automobile, tire, accessory, equipment and battery field in the city and nearby adjacent territory are members, the association thus claiming to be one of the largest of its nature in the United States.

The fall and winter program is to include a series of merchandising meetings by each separate division of the association.

Among other things the Atlanta organization is planning a comprehensive advertising campaign to "sell" the automotive industry to the public. This campaign probably will begin this fall.

TO DISCUSS FUEL

WASHINGTON, Sept. 22.—Fuel for motor vehicles is to be the subject that Thomas Midgely, Jr., research engineer of the General Motors Corp. will discuss at the fall meeting of the Washington section of the Society of Automotive Engineers, to be held at the Cosmos club on the evening of Sept. 26.

There has been as much work done in conjunction with the study of proper fuels for motor vehicles as there has been in the designing and building of the present day automobile, but outside of the few who have had occasion to come in contact with the research department of the various factories, little has been heard of the fuel question by the general public. They know that their cars are giving greater mileage today than ever before but as to the exact reasons they are more or less in doubt.

Dealers' Big District Meetings At Shows Follow Trade Days

Arrangement Will Permit Retailers and Factory Men to Get Together Early Without Disturbance

NEW YORK, Sept. 22.—Decision on the part of the National Automobile Dealers' Association to call its New York and Chicago show time meetings for the Mondays following the trade days in both cities will aid materially in the efforts of both the National Automobile Chamber of Commerce and the Motor and Accessory Manufacturers' Association to make the national exhibitions the background for the biggest gatherings of members of the automotive industry that ever have taken place.

The N. A. D. A. will hold a big district meeting and sales congress on Monday, Jan. 5, at New York, while at Chicago the same program will be repeated on Monday and Tuesday, the 26th and 27th. This will make practically three continuous trade days at New York and four at Chicago, insuring the early attendance of dealers at both shows. With dealers on the ground at the beginning of the shows, factory executives necessarily will have to be in attendance at the same time, affording a great opportunity for makers and retailers to get together undisturbed by the public.

Never before has the show management put so much effort in bidding for the attendance of the dealers and at the same time driving home to the manufacturers the benefits of the trade days as a mart where equipment manufacturers can meet their customers and car builders can display their wares in attractive form to the men who have to sell them.

ADDS AUBURN TO LINE

ALBANY, N. Y., Sept. 22.—Alex Horton, 286 Central avenue, has been appointed Albany county distributor for Auburn cars. The Auburn will be sold in addition to Mr. Horton's present lines, which include the Gardner and the Stewart trucks.

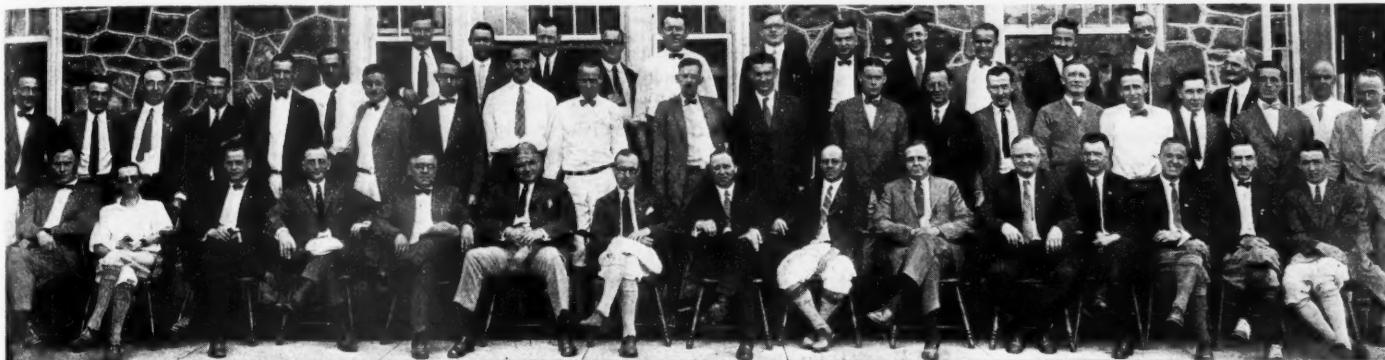
BACK FROM HAWAII

SAN FRANCISCO, Sept. 22.—R. F. Thompson, general manager of the Howard Automobile Company, Buick distributors of San Francisco has returned from an extended vacation to the Hawaiian islands.

WILLYS-OVERLAND CHANGE

DALLAS, Tex., Sept. 22.—The retail agency of the Willys-Overland lines in Dallas has been divorced from the factory branch and the franchise in the Dallas district awarded to Briggs and Brown, a new automobile concern.

"You're Never Too Young to Learn," Say These School Boys



One of the summer school classes of the Black & Decker Manufacturing Co., Baltimore, which organization, among other things, manufactures Portable Electric Screw Drivers and Socket Wrenches. In order to familiarize salesmen and manager with the applications of these tools the company hit upon the idea of educational clinics where practical instruction was offered. The company topped off the program with a contest in which its "students" were called on to display their prowess with the tools in discussion

NEW STANDARD UNIT 1½ TON

DETROIT, Sept. 22.—Further details regarding the new Fisher Fast Freight have been released by the Standard Motor Truck Co. It will have a 1½ ton capacity, a maximum speed of 35 m.p.h. and will carry a price of \$1295. The engine will be a four-cylinder unit with a 4½ in. bore and 4½ in. stroke. Clutch and gearset will be mounted as units, with the power plant, and the latter will provide three speeds forward and reverse. The propeller shaft will be a two-piece design, with three universals, the forward portion of the shaft being supported by a self-aligning ball bearing.

The frame will be a semi-flexible design with straight channel side rails five inches deep. The wheelbase will be sufficiently long to take at 11 ft. body. Pneumatic tires 30x5 front and 32x6 rear will be regular equipment.

TIRE MEN TO GATHER

AKRON, O., Sept. 22.—The Fifth Annual Convention of the National Tire Dealers Association will be held in Akron, Ohio, November 18, 19 and 20. The organization is composed of retail tire merchants from all parts of the United States.

More than 2,000 tire dealers, members of the Association and non-members, from all over the country are expected to attend. The convention will be held in the Armory, which has a seating capacity of 2,500. An interesting program has been planned for the entertainment of the convention guests. Arrangements have been made for trips through the rubber plants, and speeches by officials in the tire and rubber industry.

SECURE ROLLIN CONTRACT

DES MOINES, Sept. 22.—The McEleney Auto Co., Clinton, Iowa, have secured the Rollin contract for Clinton county.

Toledo Retailers Counting On Harvest Money for Brace

TOLEDO, Sept. 19.—Toledo dealers report business in August at much the same gait as in the previous month but are hopeful that automobile sales will increase considerably in September.

Practically all dealers are cleaned out of the 1924 models. There are only about two or three exceptions here and they are fast liquidating stocks. This condition is believed to be quite favorable to better business in prospect when harvest money begins to circulate.

Industrial conditions in this district are rapidly improving and already the automotive industries have begun to feel the impetus to buying in other sections.

The used car situation continues on a good basis here. Sales are very good in this line.

GIVEN CHANDLER CONTRACTS

CLEVELAND, O., Sept. 22.—The following dealer appointments have been made by the Chandler Motor Car Co.:

Rath & Gildner, Los Angeles, Cal., Frank H. Wilkin, Pomona, Cal., Brennan-Tucker Motor Co., Denver, Colo., Juul Motor Sales Co., Chicago, Ted P. LaVigne, Ishpeming, Mich., Louis Fleche, Berlin, N. J., C. K. Cattanach Motor Sales, Lakewood, Cleveland, Ohio, J. C. Carnagan, Bartlesville, Okla., Taggart Motor Company, Sapulpa, Okla., A. D. Shook, Bangor, Pa., Pennsylvania Garage, Chambersburg, Pa., J. Milton Glouner, Lancaster, Pa., Automotive Service Station, Mount Union, Pa., Geo. B. Ammerman, Philipsburg, Pa., Clover Panaro Motor Co., Scranton, Pa.

LET ROAD CONTRACTS

RALEIGH, N. C., Sept. 20.—The North Carolina Highway Commission has let contracts for 97 miles of road work, with a total cost of a million and a half dollars. About 20 miles of the new construction is to be hard surface, the rest grading and surfacing with top soil or sand clay.

BATTERY DEALERS ON OUTING

LOUISVILLE, Ky., Sept. 22.—Twenty members of the Louisville Battery Dealers' Association held a dinner meeting at Fontaine Ferry Park. While the primary object of the meeting was of an outing nature, those in attendance found time to discuss conditions in the battery business.

H. M. Baumgartner of Columbus, Ohio, district manager for the Philadelphia Storage Battery Company, was the guest of J. K. Graves, vice-president of the local association. He was called on for a talk by W. R. Hunter, president of the association, and outlined a number of ways in which the dealers could increase business.

Mr. Baumgartner urged the importance of newspaper advertising, stating that it was as important for the battery business to get before the public through the medium of the daily press as for any other line of retail business. He suggested an advertising appropriation of two per cent of the annual business done by each concern represented.

400 GET MOTOR TRAINING

FT. SAM HOUSTON, Tex., Sept. 22.—It is officially stated that motor parts and accessories to the value of \$14,000,000 are at present stored in the warehouses at Camp Normoyle. In the shops at this great motor vehicle repair station about 400 young men are constantly employed. They are receiving thorough training in motor mechanics, and as fast as they finish are replaced by others.

The graduates of this motor vocational school become part of the reserve service of the army. The shops cover a floor space of 400x500 feet. Every class of army motor vehicle is handled in the shops. The most modern equipment enables the men to do the repairing and rebuilding work in the quickest possible time.

Ford Norfolk Assembly Plant Will Be Ready About Jan. 1

Building Under Construction 35th Unit of Class, Adding 90,000 Cars to Production

DETROIT, Sept. 22.—Work on a Ford assembly plant at Norfolk, Va., is under way and the plant will be ready for operation about the first of the year. The Norfolk plant will be the thirty-fifth assembly unit in the United States and will add approximately 90,000 cars yearly to the production capacity.

Shipping from the plant will be both by boat and rail in its territory, a government permit having been issued for construction of a large pier at which ocean steamers may dock. As export shipping increases the company indicates that the increase or part of it will be handled through the Norfolk plant.

The main factory building will conform to the standard plans adopted by the Ford company. A separate powerhouse building equipped with a Ford-built steam turbine and a large oil warehouse are included in the plant layout.

An outstanding feature of the Norfolk plant will be a conveyor delivery system connecting with the storage lines, whereby cars by types will be delivered for driveway simply by pressing an electric button.

STUTZ OPENS N. Y. BRANCH

NEW YORK, Sept. 22.—The Stutz Motor Car Co. of America has opened a factory branch in New York City, taking over the territory formerly handled by William Parkinson, for years distributor in the Metropolitan district. Harry W. Anderson, formerly eastern district sales manager, has been placed in charge of the branch, which already is building up its own dealer organization. The branch is located at 1830 Broadway, with a large service station at 109 West Sixty-fourth Street.

PARADE SIGNALS OPENING

DUBUQUE, Ia., Sept. 20.—More than 100 cars participated in the Buick parade here which inaugurated the opening of the new home of the Belsky Motor Company at Eighth and Iowa streets and thousands inspected the completely equipped and handsomely designed garage, salesroom and service plant. The new garage is three stories high.

OVERLAND PROMOTES CALKINS

TOLEDO, Sept. 22.—W. B. Calkins, for four years assistant purchasing agent of the Willys-Overland Co., has been made general purchasing agent. He succeeds W. P. Cromling, who died recently. Mr. Calkins has been in the automobile business for more than 20 years.

To Try Charcoal Gas Producer

PARIS, Sept. 22.—An order for 30 trucks equipped with the Imbert charcoal gas producers has been placed by the French military authorities with the Berliet Co. of Lyons. This method of producing gas from charcoal is the invention of the Alsatian engineer, Imbert, who has sold his rights to the Berliet Co. One of its advantages is that its small bulk allows it to be applied to a normal passenger car.

An exhibition of trucks and agricultural tractors running on charcoal gas or having internal combustion engines using fuels obtained from vegetable oils is announced by the French Ministry of Agriculture to be held at Buc, near Paris, from Sept. 30 to Oct. 5.

Automotive Production in Central Indiana Stepping Up

INDIANAPOLIS, Sept. 22.—News from nearby towns received here recently shows that central Indiana as well as Indianapolis is speeding up its automotive production in many lines. The Hayes Wheel Company shipped two carloads of machinery from its Flint, Mich., plant to its wheel works at Anderson and will resume the manufacture of automobile wheels there, confining itself to the production of hickory billets for spokes for several months.

The increased production will employ 200 more men at once and later more will be added. Equipment for the manufacture of Klaxon products is being moved from the Newark and Blooming, N. J., plants to the main factory of the Remy Electric Company at Anderson where Klaxon horns and other specialties will be made in increasing quantities. The working force now numbers 1200 and indications are 2000 will soon be employed. Old employees of Remy are being called back.

WANTS AGENCY CHAIN

BLOOMINGTON, Ill., Sept. 22.—C. D. Eaton, Havana, Ill., who has Ford agencies in that city and Easton, Ill., has purchased the Ford agency in Mason City, Ill., of R. J. Haehl, who retires. Mr. Eaton believes that a chain of agencies can be operated with a heavy reduction in overhead expense and will add new branches from time to time in central Illinois.

WILL SERVE MOON

MINNEAPOLIS, Sept. 22.—The Kramer-Diethert Motor Co., 315 University Ave., St. Paul, has been appointed Moon dealer in that section.

Iowa Dealers Have Eyes on Progress of Corn Crops

Say Motor Buying Will Likely Be Delayed Until Fate of Fields Is Determined

DES MOINES, Sept. 19.—Iowa automobile dealers as well as Iowa farmers are anxiously watching the progress of the corn crop. The prosperity and buying power of the state depends, to a large extent, upon the outcome of Iowa's major crop. Although the crop is at present a full three weeks behind normal, it is hoped heavy frosts will be delayed until the latter part of this month and that the crop will have opportunity to mature. A good corn crop will mean a corresponding increase in the number of automobile sales. Fall business depends almost entirely on the outcome of the corn. Buying will probably be delayed until the fate of the crop can be determined.

Most Iowa dealers have cleaned up their stock of 1924 models and are ready to concentrate on the new models. Only a few have many old models left. Price increases are giving these dealers an opportunity to dispose of 1924 models without much financial loss. Business during the last thirty days has been fair considering the uncertainty surrounding crop conditions and the disturbance created by the introduction of new models. For the most part, dealers are not heavily stocked with used cars. Dealers have watched their used car stocks very carefully this year and have been very cautious in trading. As a result, used car stocks are somewhat lower than at this time last year.

SELL CLEVELAND AND CHANDLER

MEMPHIS, Tenn., Sept. 22.—The F. M. White Motor Company, successors to the H. A. White Auto Co. has accepted the agency in Memphis for Cleveland and Chandler cars and the new firm will continue the business started 21 years ago. The H. A. White Auto Co. was one of the pioneers in Memphis, having been organized in 1903. The company then handled the Buick, Cadillac and Durant cars and for the 20 years it was in existence. It was liquidated in 1923, H. A. White retiring.

OLDS BRANCH OPENED

MINNEAPOLIS, Sept. 22.—The Olds Motor Works has placed a branch in Minneapolis in the 3-story building at 16-18 Eighth Street S., 30,000 square feet of space. The shop is on the third floor, offices and parts on the second floor, sales and light service on the first floor. E. L. Glenny, formerly Pence Automobile Co. and for two years zone manager for the Oldsmobile, is branch manager. This is the fourth factory branch opened by the General Motors in the city.

Automotive Plants Increase Operations, Bulletin Shows

While Employment Gain Is Found in August Reports Indicate Cases of Surplus Help

WASHINGTON, Sept. 22.—General reports that automobile factories are increasing their operations and that employment in this industry is improving is contained in the September issue of the Industrial Employment Information Bulletin just made public here by the U. S. Employment Service of the Department of Labor. It is made plain, however, there still are numerous instances in which automobile plants are working on part time and surpluses of employment exist.

Almost without exception the reports on rubber tire plants show maximum employment with overtime the order of business.

Following are some of the more important bulletins:

Detroit, Michigan: At Highland Park two large motor companies are working only part time, affecting 60,000 workers.

Flint, Michigan: A surplus of labor exists, principally of automobile workers. One automobile plant has closed down completely affecting about 200 men and three other large automobile factories are operating only part time, affecting 9,500 men.

Scranton, Pennsylvania: Employment in automobile accessory plants is gradually increasing.

Indianapolis, Indiana: Some idle labor exists, particularly in the automobile line.

Anderson, Indiana: A surplus of labor exists in the automobile industry. A large motor company has located a branch factory here that will require considerable labor when operations are started.

Kokomo, Indiana: A local rubber plant is operating overtime, while an automobile plant has closed down, affecting a small number of workers.

Muncie, Indiana: There is a surplus of labor, particularly automobile workers.

Racine, Wisconsin: The rubber-tire companies are working overtime, one plant running three shifts.

Cincinnati, Ohio: After about two months of idleness one automobile manufacturing company here has resumed operations at 50 per cent capacity production.

Toledo, Ohio: Nearly all plants are running in this city, with the surplus labor most apparent in the automobile-accessories industry.

Akron, Ohio: All the large rubber factories have increased production now operating about 84 per cent capacity.

St. Louis, Missouri: A slight improvement in employment was observed during the latter part of August. Automobile plants report slight gains over last month.

Rain Or Shine He Makes the Sale

HARTFORD, Conn., Sept. 22.—E. C. Collopy, head of the Motor Sales Co., Ford distributor in Hartford, Conn., is a live wire. His one big thought is to sell Fords, regardless of weather or conditions.

One of his experiences happened at the state fair automobile show during a heavy downpour which practically put all attractions out of business. Collopy was gazing out upon the deluge when a fair visitor rushed into his tent for shelter. Here was a prospect. And Collopy jumped to it with the result that a sale was made in the midst of the heaviest rain of fair week.

"You never can tell," said the Ford dealer. "They are likely to drop from the sky these days."

Automotive Manufacturers More Active in Steel Buying

PITTSBURGH, Sept. 22.—An improvement that is more marked than any other grade of sheet buying is evident in automobile sheets during the past week. In fact, the trade here comments on the betterment in the automobile demand and also that of the agricultural implement manufacturers, improvement in both of which are considered important signs while the better demand for sheets for implement manufacture reflects in all probability the better cash position of the farmer.

The automobile buying indicates both a better demand for motor cars and replacements of stocks, for all automobile sheet orders are being taken for immediate shipment as soon as the mills can turn them out. The leading sheet interests still will not sell for any further ahead than the mills convenience.

Studebaker Agent Puts Punch in First Showing of New Models, Books Orders and Gets Prospects

BOSTON, Sept. 22.—Joseph S. Donovan, distributor for Studebaker in greater Boston, showed how to put some punch into the annual announcement of the 1925 cars. Instead of waiting until the Sunday papers carried the full page copy and then getting people in following it, he staged a show here on Saturday. First he closed his salesrooms Friday and put up large signs announcing why. Many passersby saw the signs and began peering in the windows. They saw three silhouettes of cars enveloped in white sheets.

Stage Show to Let Public See Latest Lines of Cars

Houston Dealers Display 1925 Offerings on Ground Floor of Business District Skyscraper

HOUSTON, Texas, Sept. 22.—To acquaint prospective automobile purchasers with what the 1925 models offer in the way of added conveniences and comforts Houston automobile dealers staged a three-day show on the ground floor of the Humble building, one of the skyscrapers in the Houston business district. Forty-eight models, representing practically all lines of standard cars, were represented at the show, in which 24 dealers participated.

Staging the show in the Humble building, the dealers were able to exhibit their wares to thousands of Houstonians and visitors without expense to themselves or their clients. During the three days and nights of the show the display rooms were crowded and orders for hundreds of new cars were taken.

At the Houston show, closed cars in rather striking colors were in evidence. Prospective buyers and present car owners saw disc wheels and balloon tires, four-wheel brakes, and some other features have been added to most 1925 lines. They found also the prices have been advanced but little.

Dealers declare the show stimulated business greatly. The regular fall show of the Houston dealers will be held during the carnival early in November.

Dealers in San Antonio, Tex.

SAN ANTONIO, Tex., Sept. 22.—The automobile business in San Antonio and with the San Antonio dealers and distributors this year has set a record. During August around 1,800 cars were sold by retail dealers in San Antonio. Distributors moved about that many to agents over their territory. The retailers moved an average of 1,300 cars a month for the first eight months of the year.

Then Mr. Donovan sent out a lot of invitations to the show.

Long before time for the show to open there was a big throng about both front and rear. The display was well attended.

In the Sunday newspapers instead of the usual factory publicity the papers carried news stories about the big show crowd. Incidentally Mr. Donovan signed a lot of orders, got some good prospects and received many telephone calls from people who saw the crowd and said they would drop in later.

Maxwell-Chrysler to Apply Policy Against Overloading

Executive Says Hereafter Effort Will Be Made to Balance Output and Sales

DETROIT, Sept. 22.—Another big producer has joined General Motors in adopting a policy not to overstock the retailers, the Maxwell Motor Corp., through Walter P. Chrysler, president and chairman of the board, announcing that hereafter every effort will be made to balance production and sales.

"Although public demand for the new Chrysler cars is ahead of present output, our policy is to limit the current month's production to the previous month's actual sales to the public," says President Chrysler in his official announcement. "This means the Chrysler and Maxwell organization will avoid the embarrassment of overproduction and overstocking dealers. We are now on a well balanced basis and as sales increase we are in a position to expand plant operations.

"Under this plan of operations Chrysler and Maxwell inventories are kept in liquid shape and forward commitments are restricted to actual requirements."

At the same time Mr. Chrysler announces that his dealer organization has grown from 1696 a year ago to approximately 2900 now. Two years ago there were 1221 enrolled.

LeRoy E. Jolls Joins Marmon As Mechanical Superintendent

INDIANAPOLIS, Sept. 22.—G. M. Williams, president and general manager of the Nordyke & Marmon Company, has announced the appointment of LeRoy E. Jolls, of Detroit, Mich., as mechanical superintendent. Mr. Jolls will assume his new duties at once. He will have complete supervision of the mechanical and manufacturing division of the plant.

Mr. Jolls entered the industry in 1902 with the Oldsmobile plant in Lansing, Mich. Later he was with such companies as Rainer, Studebaker, Packard, Duesenberg and Northway Motor Corp. Before accepting the position with the Nordyke & Marmon Company, he traveled as a works representative for the Potter & Johnson Machine Company, Pawtucket, R. I.

ENLARGE BODY PLANT

JACKSONVILLE, Fla., Sept. 22—The Smith & Neil Co., of Jacksonville, manufacturers of automobile bodies, has just completed a 7,000 foot addition to the company's main plant at Jacksonville, giving the firm a total manufacturing space of 25,000 square feet, and making it one of the largest body manufacturing companies in the Southeast. The firm makes bodies for practically all cars.

Ownership of State's Farmers 72 Per Cent

PHILADELPHIA, Sept. 22.—Information gathered from more than 700 crop reporters in Pennsylvania shows that the ownership of automobiles by farmers in this state increased from seven per cent in 1915 to 72 per cent in 1924. These figures do not include trucks.

There are 202,000 farmers in Pennsylvania and 72 per cent of these would mean 145,440 automobile owners. Some of these undoubtedly have more than one passenger car.

It is probable these cars average around 5,000 miles a year travel. If a cost of six cents per mile be assumed, or \$300 per car, this would be \$43,632,000 for annual maintenance.

Prospect Contest Conducted By Retailers Is Big Success

PHILADELPHIA, Sept. 22.—The novel contest for names of prospects conducted among Nash owners by the Philadelphia Nash Motor Company and lasting for a period of nine months has reached a successful termination.

Mrs. B. A. Bahn a resident of Philadelphia, was declared the winner, and received as grand prize, a Nash Carriole. Ten of the names which she suggested as possible Nash buyers resulted in sales. Additional awards of \$10 were made for each name turned in by owners which resulted in the sale of a Nash.

The final standings show that 30 new cars were sold and delivered during the competition. William P. Berrien, sales-manager of the Philadelphia Nash Motor Company, stated that 37 more sales are expected to be closed.

"Our records show," said Mr. Berrien, "that we did a business of \$48,925 from sales made to prospects furnished by owners. Our dealers also sold a number of used cars to persons whose names came from the same source.

"The operating cost of the contest was comparatively negligible considering the highly satisfactory results. Our total expenses, including the Grand Prize, the cash prizes, printed matter, stationery, letters and postage, came to exactly \$1,910.85. This, of course, does not include the regular sales expense.

DIXIE LINK FINISHED

KALAMAZOO, Mich., Sept. 22.—The Dixie Highway in this state is now paved south from Kalamazoo to the Indiana line. The last link to Portage was opened recently and the new road has been formally accepted.

Hartford Dealers Satisfied With Results At State Fair

Reo Agent Adds to List of Prospects Through Novel Guessing Contest for Visitors

HARTFORD, Conn., Sept. 22.—Hartford car dealers who participated in the annual motor car exhibition at the state fair express themselves as fairly well satisfied with results. While sales were anticipated the big idea was in the gathering of new prospects and paving the way for fall business. Prospect lists have been brought up to date by the addition of many more new names and some sales were made.

The dealers though hampered by inclement weather made the most of their opportunity. The show was the largest ever staged at the park. The display this season was made in individual tents.

Reports from accessory dealers indicate their satisfaction with the show.

Earl M. Taber, vice-president of Russell P. Taber, Inc., who staged one of the largest exhibits of passenger cars and buses ever seen at the state fair, wanted to increase his prospect list. After due consideration he placed a one ton Reo speed wagon within an enclosure, caused it to travel unguided around a circle for 58 hours during the fair and announced that the person guessing the nearest to the mileage made by the car would be given a cash prize of \$50 or an allowance of \$200 in trade.

The car actually traveled 160.8 miles during the 58 hours of running during which travel was in first, second and high gear just to make it interesting. A visitor from a nearby country town by simple arithmetic figured the car would travel 161 miles. He was the winner and expressed his preference for an allowance.

Franklin Company Reports Largest August in 3 Years

SYRACUSE, N. Y., Sept. 20.—The Franklin Automobile Co. reports the largest August business in three years, following which there has been an increase of 94 per cent in shipping orders received and 38 per cent in shipments in the first nine days of September as compared with an equal period in August.

CONSTABLES AGAIN

BUFFALO, Sept. 22.—A campaign against needless arrests of motorists by constables after fees in the village along the Lake Shore road, is being undertaken by the Buffalo Automobile Club. Motorists have been arrested for driving off the brick pavement momentarily and for passing slow moving trucks.

The Buffalo club is starting a movement to have all constables in the rural districts operate on a salary instead of fees on arrests.

Monogram Interests Win Long Fight With Keystone Makers

Court Upholds Plaintiff's Radiator Cap Claims and Settlement Is Made With Defendants

CHICAGO, Sept. 20.—Long-standing patent litigation involving the Monogram radiator cap and the Keystone radiator cap was brought to a termination here yesterday upon settlement of differences between the respective manufacturing and patent claiming interests. Disposal of the issues in court constitutes a victory for Miller & Pardee, Inc., parent concern of the General Automotive Corp., manufacturer of the Monogram cap, which had brought suit against the Advance Products Corp., the Norlipp Co., A. C. Lippert, Louis Hoffberg and Clayton A. Norton, representing and claiming prior rights for the Keystone cap.

Settlement of the case in the plaintiff's favor followed a decision by Judge Wilkerson, in United States District Court, in which it was held that the Keystone cap was an infringement upon design patent claimed by Miller & Pardee and in which the court permanently enjoined further infringement. The court also ordered an accounting on the part of the defendants and a financial settlement with the plaintiff. An appeal from this ruling was filed but later withdrawn and a final settlement negotiated. While this settlement brought an end to the differences between the litigants in this case counsel for plaintiffs stated that it did not release concerns that have resold the infringed caps, specifying particularly the jobbers.

Features of Settlement

According to Delos G. Haynes, of St. Louis, of counsel for plaintiffs, the Keystone interests on Sept. 17 paid Monogram interests \$25,000 in cash and agreed to deliver immediately to Monogram all of the Keystone and Stalock caps on hand, all tickets and advertising matter for them and all jigs and dies used in their manufacture. He also stated that Louis Hoffberg, represented in court as the Keystone cap's inventor, had signed a concession of priority to Monogram inventors in the patent office interference on this subject.

Position of Defendants

When asked for a statement bearing on the case, Attorney John C. Carpenter, of counsel for the Advance Products Corp., stated that a letter addressed to his clients' customers set forth his clients' position. The letter to which reference was made in part is as follows:

"At this time we desire to advise our customers that suit for infringement of design patent has been determined against us and a decision rendered in favor of Miller & Pardee, Inc., plaintiff. This decision is confined to specific features of our old caps, and we are pleased

Wow! Now the Slow Driver Is Menace



HARTFORD, Conn., Sept. 22.—Experience has shown that many accidents in the state of Connecticut are due to unreasonably low speed and passing other cars at excessive speed.

Week ends throughout the season have contributed their share of the so-called reckless drivers, many of whom are on the road only at the week-end and then brisk along at a merry clip.

Slow driving on the week-ends and holidays also is becoming a distinct menace, say officials. Whereas a speed of 25 to 30 miles an hour will keep traffic rolling nicely, some drivers will insist on 15 miles an hour and then hold up a line for a mile or more. The slow driver is beginning to get almost as much attention as the fellow who goes too fast.

to advise you that it leaves us free to provide our new ball arm, self-locking cap which is now about to be offered to the trade.

"We have determined not to appeal from the decision of the District Court, and accordingly have accounted in full to plaintiff for all damages, profits and costs by virtue of the decree rendered against us on Sept. 15, 1924. We have, for some time past, been experimenting on new models of radiator caps, which we believe to be of handsome design and which we feel will prove even more popular with our customers and the consumer than anything which we have heretofore put on the market. We ask your indulgence for a short time and assure you that samples will be ready for your consideration and inspection almost immediately.

"In view of the above we will be unable to make further shipments of the Staylock, Senior and Junior A model caps."

ADOPTS ROAD SLOGAN

MONTREAL, Can., Sept. 22.—The Province of Quebec Safety League has adopted as a slogan "Maintain the courtesy and gallantry of the road".

E. L. Cord Vice-President and General Manager of Auburn Co.

Farley's First Year as Chief Executive Finds Organization's Finances in Healthy Condition

AUBURN, Ind., Sept. 22.—E. L. Cord has been elected vice-president and general manager of the Auburn Automobile Co., according to an announcement by J. I. Farley, president of the organization. Mr. Cord until recently was connected in an executive capacity with the Quinlan Motor Co., Chicago, Moon distributor, being a member of the Chicago Automobile Trade Association and a well known figure in the Chicago fraternity. He has had extensive automobile experience. In announcing the election of Mr. Cord Mr. Farley makes the following comment:

"In the selection of Mr. Cord we have greatly strengthened the Auburn Automobile Co., as he has had the experience necessary to help share in the responsibility and we feel that a very important step forward has been made. The election of Mr. Cord for this position does not disturb the personnel of the organization and the men who have been identified with it for some time past in making it a successful institution are to be retained."

Strong Financial Position

September 5 marked the first anniversary of Mr. Farley's incumbency as president of Auburn. In connection with the company's financial position and operations he said:

"Today all outstanding obligations, including indebtedness to banks, have been paid and a substantial amount of preferred stock has been retired two years in advance of requirements. Nineteen twenty-four will be a milestone in the history of the automobile industry at large as one of the difficult years to transact business and make a fair showing to the owners. Unlike other years a general business depression settled over all industries in the early part of the year rather than running along until summer or early fall, and the automobile business was not an exception to this."

"The results of the Auburn Automobile Co. operations during the present year have been very satisfactory, however, and the organization has been highly complimented by its board of directors in having made such an excellent showing."

BRASHEAR SUCCEEDS McDARBY

ST. LOUIS, Sept. 22.—Rex Brashear, lately factory service manager, has been appointed assistant sales manager of the Moon Motor Car Co., succeeding Neil E. McDarby, who recently left the Moon company to become associated with the Embleton Motor Co., Moon distributor in San Antonio, Texas.

With the Associations

Show in Large Tent

QUINCY, Ill., Sept. 22.—Automotive dealers of Quincy staged their annual display of cars at the Adams county fair the second week of September in a tent 280 feet in length and 80 feet in width. Seventy-four cars were exhibited. The management of the show devolved upon Arthur H. Nesta, president of the Quincy Auto Trades Association. Much of this labor previously was performed by Secretary Henry C. Sterling. His death occurred recently and his successor has not yet been chosen.

Always in the past, the space for the motor car display has been restricted. For the first time this year the dealers secured all of the space they cared for and this contributed to the event's greater success.

To Attend in Force

NEW YORK, Sept. 22.—Albert Antkes, State vice-president of New York of the Automotive Equipment Association, has

arranged for a complete section of the Broadway Limited for the A. E. A. convention in Chicago next November.

The train will leave here on the 8th of that month at 2:55 p. m. and will arrive in Chicago at 9:45 a. m. on Sunday. The convention dates are Nov. 10-15.

Accessories as Prizes

ST. LOUIS, Sept. 22.—Contests in which automotive articles were awarded as prizes featured the annual picnic of the Associated Automobile Service Companies, of St. Louis. The prizes ranged from piston rings and spark plugs to horns and clocks.

Stage Membership Drive

BIRMINGHAM, Ala., Sept. 22.—The Alabama Automotive Trades Ass'n has launched a plan to increase its membership roll considerably by the time set for the annual meeting in January. The state has been divided into districts with

a chairman in each who is to see that all eligibles in the district are given an opportunity to sign up. Jobber salesmen who cover the state waged a competitive campaign in connection with the big drive during the week of Sept. 15. Prizes were offered the salesmen securing the most new members in this period.

Show Is Success

COLUMBUS, Ohio, Sept. 22.—Probably the largest fall automobile show in the history of Columbus was held in a special building on the Ohio State Fair Grounds Aug. 24-30 under the auspices of the Columbus Automobile Dealer's Co. the local organization formed a half dozen years ago to operate automobile shows. The building was appropriately decorated and in all there were 35 different cars of 43 different makes displayed.

The visitors were largely from the farming sections of the Buckeye State and consequently the displays were made for the farmer primarily.

Coming Motor Events

Automobile Shows

Birmingham, Ala.	Dec. 1-6	Dixie Automobile Show, Municipal Auditorium, under the auspices of Birmingham Motor Trade Association, G. P. Caldwell, Secy.
Chicago	Jan. 24-31, 1925	National Automobile Chamber of Commerce.
Chicago	Oct. 11-18	Second Annual Closed Car Show, Coliseum, under the auspices of the Chicago Automobile Trade Association. L. L. Fest in charge.
Chicago	Oct. 21-27	First National Transportation Show in American Exposition Building, promoted by Motor Truck Industries, Inc. William Hallanger, Manager.
Chicago	Jan. 26-31	Twentieth Annual Automobile Salon.
Clarksburg, W. Va.	Oct. 16-18	Clarksburg Automotive Trade Association Closed Car Show, Carmichael Auditorium.
Dallas, Texas	Oct. 11-26	Annual Automobile Show, Fair Grounds, under the auspices of the Dallas Automotive Trades Association.
Detroit	Jan. 17-24, 1925	Detroit Automobile Show, Detroit Dealers' Association.
El Paso, Texas	Sept. 20-27	Automobile Show, Exposition Grounds, under the auspices of the Automobile Department of the International Fair Association. W. J. Wile and E. C. Heid, General Chairmen.
Kansas City, Mo.	Feb. 7-14, 1925	Kansas City Motor Car Dealers' Association Show.

Newark, N. J.	Jan. 10-17, 1925	Eighteenth Annual Automobile Show under the auspices of the New Jersey Automobile Exhibition Co., Chamber of Commerce Building. Claude E. Holgate, Manager.
New York	Nov. 9-15	Twentieth Annual Automobile Salon, Hotel Commodore.
New York	Jan. 3-10, 1925	National Automobile Chamber of Commerce.
Philadelphia	Jan. 10-17, 1925	Twenty-fourth Annual Automobile Show, Philadelphia Automobile Trade Association, Commercial Museum.
Pittsburgh, Pa.	Jan. 31-Feb. 7, 1925	Twenty-ninth Annual Automobile Show, Motor Square Garden, under the auspices of the Automotive Association, Jno. J. Bell, Manager.

Foreign Shows

Berlin	Sept. 26-Oct. 5	
Paris, France	Oct. 2-12	Passenger Car and Accessory Show.
London, England	Oct. 16-25	

Conventions

Akron, Ohio	Nov. 18-20	Annual Convention of the National Tire Dealers Association.
Atlantic City	Oct. 14-17	Thirteenth Annual Convention National Hardware Association of the United States, Marlborough-Blenheim Hotel.

Chicago	Nov. 10-15, inclusive	A. E. A. Convention, Coliseum.
Chicago	Nov. 10-15	Annual convention and show, Automotive Equipment Association.
Chicago	Jan. 26-29, 1925	Eighth Annual Convention, N. A. D. A., Hotel LaSalle.
Cleveland, O.	Oct. 15-17	Fall convention Motor and Accessory Manufacturers' Association.
Cleveland	Nov. 18-19	Joint Service Meeting of the Society of Automotive Engineers and the National Automobile Chamber of Commerce.
Columbus, O.	Dec. 10-11	Ohio Automotive Trade Association's annual convention.
Detroit	Oct. 22-24	S. A. E. Production Meeting and Exhibition.
Detroit	January	Annual Meeting of the Society of Automotive Engineers.
New York City	Jan. 7, 1925	New York Show, Convention N. A. D. A., Hotel Commodore.
Wilkes-Barre, Pa.	Oct. 17-18	Fourth Annual Convention of the Pennsylvania Automotive Association, Hotel Stirling.

Races

Fresno, Cal.	Oct. 4	Fresno Speedway Association—150 miles.
Kansas City, Mo.	Oct. 19	Kansas City Speedway Association—250 miles.
Los Angeles, Cal.	Nov. 29	Los Angeles Speedway Association—250 miles.

SQUEEKS & RATTLES

SALESMEN come in two brands. One is a go-getter. The other is a no-getter.

Of course, everybody will admit there are such obnoxious things as backward weather and presidential years but that's no reason why so many swivel chairs should be worn out agonizing about it.

There are, for a fact, just lots of salesmen who never would wear out the heels of their shoes were it not for whetting them on the top of the desk when they think "conditions" are all wrong.

Cockeyed Philosophy

"All things come to him who waits."

In the case of salesmanship the flood includes board bills, notes payable and Hell Maria from the sales-manager.

An Odor to the Sloth

Many a salesman I've saw and known
Who follerred out this infernal code—
Which is to cuss the summer an' cuss the spring,
An' autumn an' winter an' ever' dern thing
That gives an excuse for squawk or plaint
An' findin' blue devils wherever they ain't.
Now, they's rains an' hails an often snows,
An' cane is raised when the cyclones blows,
But all weather stuff that descends from the sky
Cannot ever K. O. the go-getter guy
He's playin' the game for a high stake,
No time on hands to jest bellyache
As to how dadberned an' two-faced deceivin'
He's findin' the elements every evenin'.

In Different Positions

"Now that I've got my new Crooked Eight Napoleon sedan my troubles are over," beamed the happy owner.

"And since I let that gyp sell me the second-hand Sardina coupe," replied his gloomy friend, "mine have been all under."

A fellow complains that his home-made growler gets hot. Well, that's what makes it growl.

Now, Upon My Sole

In the salon of a certain steamboat is a sign which reads, "Don't throw your gum on the carpet, it ruins it.

Certainly careless of Wrigley. He ought to make the durn stuff more durable.

CHLOROFORM.

The best we can get out of early election signs is this: "As goes the motor vehicle—so goes the nation."

Speaking of power plants the eleven-in-line is about to be in season again.

"JUNK PRICES BETTER" says a headline. But for luvamud, don't let that govern your trade-in policy.

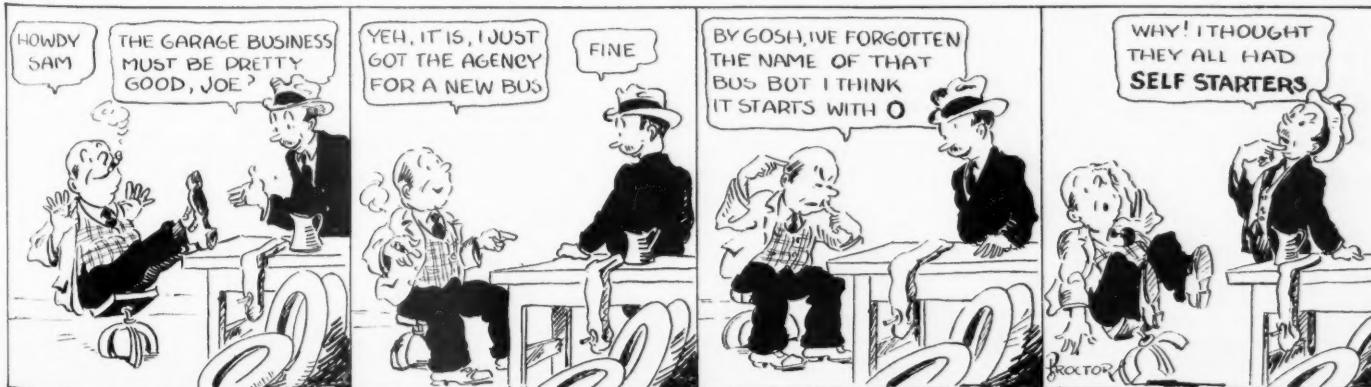
How Elevating

Announced that an accessory salesman specializing on chain hoists will deliver a talk on "The uplift of the human race."

Perhaps something of that kind would do the trick.

CHLOROFORM.

OR, MAYBE WITH A PUSH



Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price
AMERICAN			"D-66"		CHALMERS			Y		DORT			"27"		H C S			"4"	
2985	2-p	Roadster		\$1,950	2865	2-p	Roadster		\$1,185	2595	5-p	Touring		3360	4-p		Touring		\$2,250
3175	4-p	Sp. Roadster		2,050	2950	5-p	Touring		1,185	2780	5-p	Sp. Touring		3590	5-p		"6"		
8260	5-p	Touring		1,695	3095	7-p	Touring		1,295	3010	5-p	Bres. Coupe		3750	4-p		Touring		\$2,650
3300	5-p	Sport		1,850	3095	5-p	Sp. Touring		1,335	3030	5-p	Coupe		3950	4-p		Coupe		3,350
8310	7-p	Touring		1,760	3245	5-p	Coach		1,535	3045	5-p	Sedan		4010	4-p		Sedan		3,350
8190	4-p	Sp. Touring		1,885	3620	7-p	Sedan		2,095	3030	5-p	Brougham							
8470	7-p	Sedan		2,550															
8310	5-p	Brougham		2,195															
ANDERSON			"41"																
2650	5-p	Touring		\$1,195	1690	2-p	Roadster		\$495	3600	2-p	Roadster		3295	5-p		Touring		\$1,600
2675	4-p	Sp. Touring		1,445	1790	5-p	Touring		510	3700	5-p	Phaeton		3590	5-p		Sedan		2,300
2925	2-p	Coupe		1,425	1955	5-p	Phaeton DeLuxe		640	3920	7-p	Phaeton		3560	5-p		Brougham 4 d.		2,200
2725	4-p	Coach		1,495	2005	4-p	Coupe		725	3980	4-p	Sp. Phaeton							
2875	5-p	Sedan		1,695						4000	4-p	Coupe							
2925	5-p	Sp. Sedan		1,895	1880	2-p	Utility Coupe		640	4350	7-p	Sedan							
			"50"		2070	5-p	Sedan		795	3300	2-p	Roadster		3300	4-p		"Super Six"		
2975	7-p	Touring		1,595						3400	5-p	Touring		3200	4-p		Speedster		\$1,400
3200	7-p	Sedan		1,945	2945	2-p	Roadster		\$1,795	3600	5-p	Touring Sedan		3600	5-p		Phaeton		1,500
APPERSON			""		8130	4-p	Roadster		1,785	3600	5-p	Suburban Sedan		3050					
2965	5-p	Sp. Phaeton		\$1,695	8160	5-p	Touring		1,585	2235	2-p	Roadster		2595	2-p		Roadster		\$1,225
			Coupe		8195	7-p	Touring		1,735	2325	5-p	Touring		2705	5-p		Touring		1,225
3400	5-p	Sedan		2,095	8218	7-p	Touring		1,885	2345	5-p	Touring F.W.B.		2760	2-p		Coupe		1,450
3450	5-p	Sp. Sedan		2,295	8250	4-p	Royal Dispatch		2,045	2395	5-p	Sp. Touring		2860	4-p		Coupe		1,595
			"R"		8380	5-p	Chumby Sedan		2,195	2495	5-p	Coupe		2975	5-p		Sedan		1,800
4100	5-p	Phaeton		\$2,485	8600	7-p	Sedan		2,195	2405	2-p	Business Coupe		2875	5-p		Club Sedan		1,475
4315	7-p	Phaeton		2,535	8480	7-p	Limousine		3,095	2605	5-p	Sedan							
4250	5-p	Sport Phaeton		2,900						2770	5-p	Touring Sedan		2880	5-p		Touring		1,135
4570	5-p	Sport Sedan		3,750	2620	4-p	Roadster		\$1,625	2550	5-p	Coach		2810	5-p		DeLuxe Touring		1,290
4555	7-p	Sedan		3,585	2570	5-p	Touring		1,395	2981	5-p	Sedan		2880	5-p		Bus. Coupe		1,310
AUBURN			"6-43"		2800	5-p	Sedan		1,725	2560	5-p	Touring		3095	5-p		Sedan		1,545
2550	5-p	Touring		\$1,095	2915	5-p	Imperial Sedan		1,995	2585	5-p	Demi Sp. Touring		3275	5-p		DeLuxe Sedan		1,745
2672	5-p	Special Touring		1,395	2855	5-p	Brougham		1,895	2641	5-p	Sportster		3275	5-p		Sp. Brougham		1,525
2772	5-p	Sp. Touring		1,465						2900	5-p	Sedan							
2850	5-p	Coupe Touring		1,695	2750	5-p	Touring		1,095	2779	5-p	"4-40-41"							
2852	5-p	English Coach		1,945	2810	5-p	Touring De Luxe		1,195	2829	5-p	"6-50-51"							
2932	5-p	Sedan		1,795	2830	3-p	Coupe		1,295	3000	5-p	Demi Sp. Tour.		3220	5-p		Victoria		2,385
			"6-63"		2840	3-p	Spec. Coupe		1,395	2600	5-p	Touring		3375	4-p		(124 1/2 in. W. B.)		
3262	5-p	Touring		1,795	2930	5-p	Sedan 2-door		1,395	2690	5-p	Sp. Touring		3260	4-p		Blueboy Touring		2,095
3332	5-p	Sp. Touring		2,035	3040	5-p	Spec. Sedan 4 d.		1,495	2900	5-p	Sedan		3585	5-p		Sedan		2,585
3562	5-p	Sedan		2,545						2981	5-p	Sp. Sedan		3525	5-p		Series "A"		
3572	5-p	Brougham		2,345	2810	5-p	Sedan		1,775	3080	4-p	Sp. Brougham		3000	2-p		Playboy Road.		2,575
			7-p		3675	4-p	Volante Tour.		\$2,325	2779	5-p	"6-61"		3340	5-p		Touring		2,575
BARLEY			"6-50"		3795	7-p	West. Tour.		2,325	2829	5-p	Touring		3635	5-p		Brougham		2,875
2750	5-p	Touring		\$1,395	3675	4-p	Aero-Vol. Tour.		2,475	2007	5-p	Touring		3375	4-p		Victoria		2,775
2800	5-p	Sp. Touring		1,495	4055	5-p	Brouette Sedan		3,225	3380	5-p	Sedan		3375	4-p		Blueboy Touring		2,095
3100	5-p	Sedan		1,850	4000	7-p	Royal Sedan		3,225	3675	5-p	Sp. Sedan		3525	5-p		Sedan		2,490
3150	5-p	Sp. Sedan		2,250	4100	7-p	Royal Limousine		3,325	3380	4-p	Brougham		3400	5-p		Road King Sedan		1,495
BUICK			"Standard"																
2750	2-p	Roadster		\$1,150															
2800	2-p	Roadster Encl.		1,190															
2920	5-p	Phaeton		1,175	2480	5-p	Touring		\$1,175										
2970	5-p	Phaeton Encl.		1,250	2485	5-p	Spec. Touring		1,275										
			2-p		2510	2-p	Coupe		1,375										
3075	4-p	Coupe		1,565	2725	5-p	Coach		1,575										
3185	5-p	Dbl. Service Sedan		1,475	2810	5-p	Sedan		1,775										
3245	5-p	Regular Sedan		1,665															
			(120 in. W. B.)																
3300	2-p	Roadster		\$1,365	4600	7-p	Touring		\$6,300	3095	3-p	Sp. Roadster		3428	2-p		Sportster		\$1,895
			Roadster Encl.		4500	4-p	Sp. Touring		5,800	3145	5-p	Touring		3428	4-p		Foursome		1,595
3455	5-p	Phaeton		1,395	4700	4-p	Coupe		7,150	3165	4-p	Sp. Touring		3528	5-p		Touring		1,595
			Phaeton Encl.		5000	6-p	Sedan		7,650	3355	4-p	Coupe		3645	3-p		Coupe		2,200
3675	4-p	Coupe		2,125	3800	4-p	Sp. Touring		\$3,500	3470	4-p	Sedan		3875	5-p		Sedan		2,490
3845	5-p	Sedan		2,225	4200	4-p	Sedan		4,500					3400	5-p		Road King Sedan		1,495
			(128 in. W. B.)																
3470	3-p	Sp. Roadster		\$1,750															
3805	5-p	Sp. Phaeton		1,800															
3645	7-p	Phaeton		1,625															
			7-p		4150	4-p	Touring		\$6,800										
3940	5-p	Country Club		2,075	4765	7-p	Touring		6,900										
4020	7-p	Brougham Sedan		2,350	4600	4-p	Sedan		7,600										
			Sedan		5200	7-p	Sedan		7,800										
4190	4-p	Roadster		\$3,085	2650	3-p	M. O'War Road.		\$1,495	2650	5-p	Touring		3428	2-p		Speedster		\$2,185
4280	7-p	Touring		3,085	2750	5-p	Phaeton		1,395	2750	4-p	Coupe		2980	5-p		Phaeton Std.		1,685
4200	4-p	Phaeton		3,085	3070	5-p	Sedan		1,895	2710	4-p	Touring		3170	5-p		Phaeton DeLuxe		1,885
4270	2-p	Coupe		3,875	3065	5-p	P'-line Sedan		1,995										

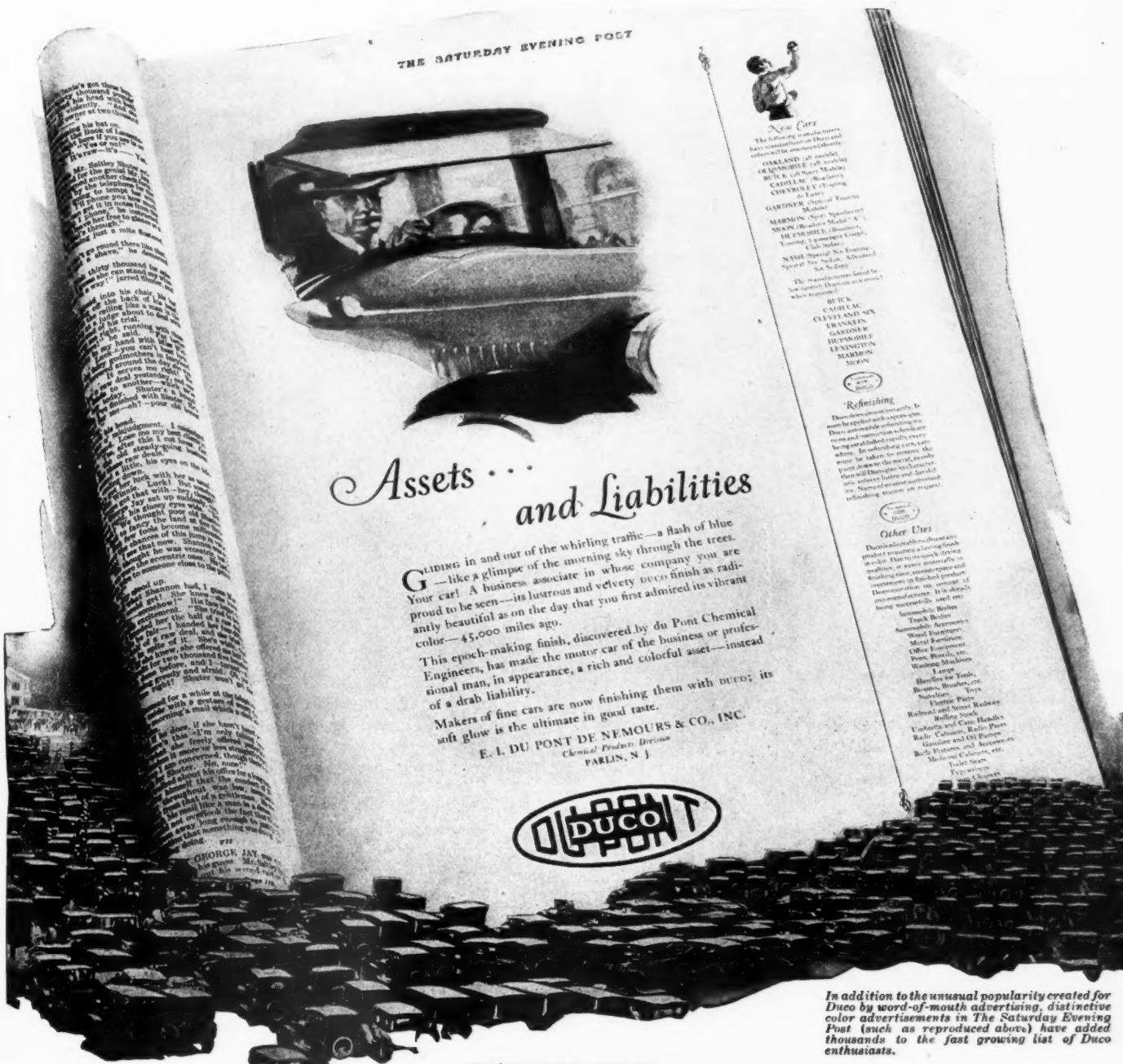
Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price
LINCOLN	4050	2-p	Roadster	\$4,000	2145	2-p	Roadster	"30"	\$875	2815	3-p	Sp. Roadster	\$1,645	
	4290	7-p	Touring	4,000	2270	2-p	Sp. Roadster	985	2880	5-p	Sp. Touring	1,595		
	4215	4-p	Phaeton	4,000	2200	5-p	Touring	875	3050	4-p	Coupe	2,095		
	4380	5-p	Coupe	4,600	2360	5-p	Sp. Touring	1,015	3160	5-p	Sedan	2,195		
	4375	4-p	Sedan	4,800	2330	2-p	Bus. Coupe	1,045				"A"		
	4600	5-p	Sedan	4,900	2460	5-p	Coach	1,065	3325	4-p	Sport Phaeton	2,195		
	4660	7-p	Sedan	5,100	2460	4-p	Coupe	1,175	4-p	Coupe	2,695			
	4720	7-p	Limousine	5,300	2570	5-p	Sedan	1,250	5-p	Sedan	2,795			
LOCOMOBILE			"48"	2740	5-p	DeLuxe Sedan	1,350					"693-4"		
	5030	4-p	Sportif Tour.	\$7,400										
	5330	7-p	Touring	7,400										
	5600	5-	Victoria Sedan	9,900										
	5644	7-p	Brougham	9,900										
	5640	7-p	Tour. Limousine	9,000										
	5868	7-p	Encl. Drive Lim.	9,900										
	5624	7-p	Cabriolet	10,250										
McFARLAN			"6" TV											
	4600	2-p	Roadster	\$5,400										
	4600	4-p	Sport Touring	5,600										
	4700	7-p	Touring	5,700										
	4900	4-p	Coupe	6,720										
	5200	4-p	Tour. Sedan	6,720										
	5200	7-p	Tour. Sedan	6,810										
	5200	7-p	Sp. Sedan	6,600										
	5200	7-p	Sub. Sedan	7,000										
	5100	7-p	Limousine	6,900										
	5200	7-p	Town Car	9,000										
	3700	3-p	Roadster	\$2,600										
	3700	5-p	Touring	2,600										
	3850	4-p	Coupe	3,100										
	4850	5-p	Sedan	3,100										
	3900	7-p	Sedan	3,200										
MARMON			"34"											
	3470	2-p	Speedster	\$3,295										
	3550	4-p	Speedster	3,295										
	3875	4-p	Phaeton	3,095										
	3890	7-p	Phaeton	3,095										
	3770	4-p	Coupe	3,585										
	3970	4-p	Sedan	3,985										
	4155	7-p	Sedan	3,985										
	4220	7-p	Suburban	4,285										
	4100	7-p	Limousine	4,285										
	4000	7-p	Town Car	4,285										
MAXWELL			"34"											
	2135	2-p	Roadster	\$885										
	2230	5-p	Touring	895										
	2410	5-p	Sp. Touring	1,055										
	2280	2-p	Club Coupe	1,025										
	2480	5-p	Club Sedan	1,095										
	2570	5-p	Sedan	1,325										
	2785	5-p	Trav. Sedan	1,585										
MOON			"40"											
	2400	4-p	Touring	\$1,595										
	2920	4-p	Coupe	2,035										
	2920	5-p	Sedan	2,045										
	3090	5-p	Petite Sedan	2,245										
			"50"											
	2850	5-p	Touring	1,695										
	3120	5-p	Sedan	2,135										
	3190	5-p	Sp. Sedan	2,245										
			"58"											
	3270	5-p	Sp. Touring	2,095										
	3590	7-p	Petite Sedan	2,885										
NASH			"40"											
	2960	5-p	Touring	\$1,595										
	3120	5-p	Sp. Touring	1,395										
	3265	5-p	Sedan 2 d	1,695										
	3750	5-p	Sedan 4 d	1,795										
			"Special"											
	2960	5-p	Touring	\$1,095										
	3120	5-p	Sedan	1,295										
			"Advanced"											
			(121 in. W. B.)											
	3385	3-p	Roadster	\$1,375										
	3385	5-p	Touring	1,375										
	3440	5-p	Sp. Touring	1,375										
	3625	7-p	Enc. Dr. Sedan	4,045										
	3675	7-p	Enc. Dr. Sedan	4,045										
	3360	4-p	Coupe	-----										
			"6-D"											
	3385	7-p	Phaeton	\$2,895										
	3440	5-p	Sedan	3,895										
	3625	7-p	Sedan	3,995										
	3675	7-p	Enc. Dr. Sedan	4,045										
	3360	4-p	Coupe	-----										
			"80"											
	3385	7-p	Phaeton	\$2,895										
	3440	5-p	Sedan	3,895										
	3625	7-p	Sedan	3,995										
	3675	7-p	Enc. Dr. Sedan	4,045										
	3360	4-p	Coupe	-----										
			"6-D"											
	3385	7-p	Phaeton	\$2,895										
	3440	5-p	Sedan	3,895										
	3625	7-p	Sedan	3,995										
	3675	7-p	Enc. Dr. Sedan	4,045										
	3360	4-p	Coupe	-----										
			"80"											
	3172	5-p	Sta. Touring	\$1,395										
	3182	5-p	Sport Touring	1,595										
	3325	4-p	Coupe	1,875										
	3515	5-p	Sedan	1,985										
	3695	5-p	Brougham 4 d.	2,235										
	3675	5-p	REVERE	"M"										
	3700	2-p	Roadster	\$3,200										
	3500	4-p	Speedster	3,200										
	3800	5-p	Touring	3,200										
	3800	5-p	Sedan	3,200										
	4130	7-p	Sedan	3,200										
OAKLAND			"6-54"											
	2420	3-p	Roadster	\$1,095										
	2510	3-p	Sp. Roadster	1,195										
	2485	5-p	Touring	1,095										
	2560	5-p	Sp. Touring	1,195										
	2620	3-p	Landau Coupe	1,295										
	2720	4-p	Coupe	1,495										
	2860	5-p	Sedan	1,545										
	2885	5-p	Landau Sedan	1,645										
	3172	5-p	Sta. Touring	\$1,395										
	3182	5-p	Sport Touring	1,595										
	3325	4-p	Coupe	1,875										
	3515	5-p	Sedan	1,985										
	3695	5-p	Brougham 4 d.	2,235										
	3675	5-p	REVERE	"M"										
	3700	2-p	Roadster	\$3,200										
	3500	4-p	Speedster	3,200										
	3800	5-p	Touring	3,200										
	3800	5-p	Sedan	3,200										
	4130	7-p	Sedan	3,200										
	3172	5-p	Sta. Touring	\$1,395										
	3182	5-p	Sport Touring	1,595										
	3325	4-p	Coupe	1,875										
	3515	5-p	Sedan	1,985										
	3695	5-p	Brougham 4 d.	2,235										
	3675	5-p	REVERE	"M"										
	3700	2-p	Roadster	\$3,200										
	3500	4-p	Speedster	3,200										
	3800	5-p	Touring	3,200										
	3800	5-p	Sedan	3,200										
	4130	7-p	Sedan	3,200										
	3172	5-p	Sta. Touring	\$1,395										
	3182	5-p	Sport Touring	1,595										
	3325	4-p	Coupe	1,875										
	3515	5-p	Sedan	1,985										
	3695	5-p	Brougham 4 d.	2,235										
	3675	5-p	REVERE	"M"										
	3700	2-p	Roadster	\$3,200										
	3500	4-p	Speedster	3,200										
	3800	5-p	Touring	3,200										
	3800	5-p	Sedan	3,200										
	4130	7-p	Sedan	3,200										
	3172	5-p	Sta. Touring	\$1,395										
	3182	5-p	Sport Touring	1,595										
	3325	4-p	Coupe	1,										

Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL	WHEELBASE (In.)	TIRES		ENGINE						Electrical System	Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES		Steering Gear	Rear Springs						
		Standard Size (In.) [†]	Balloon Equipment	Make	Model	Number of Cylinders, Bore and Stroke (In.)	Number of Main Crankshaft Bearings	Rated Horsepower, N.A.C.C.	Valve Arrangement					Type and Make	Type and Make	Gear Ratio [‡]	Foot, Type and Location	Hand, Type and Location	Four Wheel Brake Type						
American	D-65	127	33x4 ¹ / ₂	No	H-Sp	91	6-3 ¹ / ₂ x5 ¹ / ₂	29.40	L	C	3	PS	Str	A-K	P-B&B	War	M-Hnr	F-Sal	5.10	E-R	I-R	None	Lav	S-57 ¹ / ₂	
Anderson	41	115	32x4	Yes*	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Zen	Wes	P-B&B	Dur	F-Thi	1/2 Sal	4.75	E-R	E-T	Mee*	Gem	S-58	
Anderson	50	122	32x4	Yes*	Cont	SL	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	L	C	4	PC	Str	Rem	P-B&B	Dur	F-Uhi	1/2 Sal	4.62	E-R	E-T	Mee*	Gem	S-58	
Apperson	6	120	32x4	Yes*	Own	6	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	I	C	3	PS	Str	Rem	P-Roc	Mee	M-Thi	1/2 Col	5.10	E-R	I-R	Mee*	Lav	J-48	
Apperson	8	130	33x5	No	Own	8	8-3 ¹ / ₂ x5 ¹ / ₂	33.80	I	C	3	PS	Joh	Rem	D-Own	M-Thu	M-Thi	1/2 Own	4.25	E-R	I-R	Me*	Own	J-48	
Auburn	6-43	114	31x4	Yes*	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Str	Rem	P-B&B	W-G	M-Uni	1/2 Col	4.63	E-R	E-T	Mee*	Jac	S-57	
Auburn	6-63	122	32x4 ¹ / ₂	Yes*	Weid	Spec	6-3 ¹ / ₂ x5 ¹ / ₂	25.35	I	C	3	PC	Str	Rem	P-B&B	W-G	M-Thi	1/2 Col	4.63	E-R	E-T	Mee*	Ros	S-57	
Barley	6-59	119	32x4	No	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Str	Del	P-B&B	Ful	R-M&E	1/2 Col	5.11	E-R	I-R	None	iae	S-56	
Buick	"Standard"	114 ³ / ₄	31x4 ¹ / ₂	Yes	Own	Sta	6-3 ¹ / ₂ x4 ¹ / ₂	21.60	I	C	4	PS	Mar	Del	D-Own	M-Own	F-Own	1/2 Own	4.90	E-F	I-R	Mee	V-48		
Buick	"Master"	120	32x5.7	No	Own	6	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	I	C	4	PC	Mar	Del	D-Own	M-Own	F-Own	1/2 Own	4.73	E-F	I-R	Mee	Jac	V-47 ¹ / ₂	
Cadillac	V-63	132	33x5	Yes*	Own	63	8-3 ¹ / ₂ x5 ¹ / ₂	31.25	L	C	3	PC	Own	De	D-Own	Own	M-Spi	F-Own	4.50	B-F	I-R	Mee	Own	N-54	
Case	X	122	32x4 ¹ / ₂	Yes*	Cont	8R	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	L	C	4	PC	Sch	Del	D-Own	Own	R-Spi	1/2 Col	4.90	E-R	I-R	Hyd*	Lav	S-55	
Case	JIC	122	32x4 ¹ / ₂	Yes*	Cont	8R	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	L	C	4	PC	Sch	Del	D-Own	Own	R-Spi	1/2 Col	4.90	E-R	I-R	Hyd*	Jac	S-54 ¹ / ₂	
Case	Y	132	33x5	No	Cont	6T	6-3 ¹ / ₂ x5 ¹ / ₂	33.75	L	C	4	PC	Sch	Del	D-Own	Own	R-Spi	1/2 Col	4.45	E-R	I-R	Hyd*	Lav	S-57	
Chalmers	Y	117	32x4	No	Own	6	6-3 ¹ / ₂ x4 ¹ / ₂	25.35	L	A	3	PS	Str	A-L	P-Mec	War	M-Mec	1/2 Tim	5.13	E-R	I-R	Hyd*	Gem	S-56	
Chalmers	SS	123	33x6 ¹ / ₂	No	Own	6	6-3 ¹ / ₂ x4 ¹ / ₂	25.35	L	A	3	PS	Str	A-L	P-Mec	War	M-Mec	1/2 Tim	5.13	E-R	I-R	Hyd*	Gem	S-56	
Chandler	Superior	103	30x3 ¹ / ₂	No	Own	4-3 ¹ / ₂ x4	21.76	I	C	3	PS	[Zen]	Rem	K-Own	M-Own	Own	1/2 Own	4.45	E-T	I-R	Mee*	Own	S-58 ¹ / ₂		
Chevrolet	Superior	142	33x5	No	Own	4-3 ¹ / ₂ x5	45.00	L	C	3	FP	Str	Del	D-Own	Own	R-Spi	1/2 Tim	3.77	E-R	I-R	None	Own	Q-28		
Chrysler	Six	112 ¹ / ₂	30x5.7	Yes	Own	6-3	8-3 ¹ / ₂ x4 ¹ / ₂	21.60	L	A	7	FP	Str	Rem	D-Own	Own	M-Own	1/2 Own	4.60	E-F	E-T	Hyd	Jax	S-51 ¹ / ₂	
Cleveland	43	115	31x5.2	Yes	Own	43	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	3	PC	Sch	Bos	P-B&B	Own	R-Spi	1/2 Own	4.90	E-R	E-T	Mee*	CAS	S-53	
Cole	Master	127 ¹ / ₂	20x7.3	Yes*	Nort	311	8-3 ¹ / ₂ x4 ¹ / ₂	39.20	L	A	3	PC	Sch	Del	D-Own	None	M-Spi	F-Col	4.10	E-R	E-T	Hyd*	Gem	S-57	
Columbia	115	115	31x4	Yes*	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Str	A-L	P-B&B	Dur	M-Spi	1/2 Tim	4.80	E-R	E-T	Hyd*	None	Q-28	
Crawford	6-70	138	33x4 ¹ / ₂	No	Cont	6T	6-3 ¹ / ₂ x5 ¹ / ₂	31.54	L	C	4	PC	Zen	Wes	D-B-L	M-Spi	1/2 Tim	5.00	E-R	I-R	None	Lav	S-57		
Cunningham	V4	132	33x5	No	Own	V4	8-3 ¹ / ₂ x5	45.00	L	C	3	FP	Str	Del	D-Own	Own	R-Spi	1/2 Tim	4.23	E-R	I-R	None	Gem	J-62	
Dagmar	6-78	138	33x5	No	Cont	6T	6-3 ¹ / ₂ x5 ¹ / ₂	31.54	L	C	4	PC	Zen	Wes	Bos	D-B-L	B-L	M-Spi	1/2 Tim	5.00	E-R	I-R	None	Lav	S-
Daniels	24-38	138	32x5	Yes*	Own	24-38	6-3 ¹ / ₂ x5 ¹ / ₂	30.20	L	C	3	PC	Zen	Del	P-Own	Own	M-Spi	F-Col	4.23	E-R	I-R	None	Gem	S-58	
Davis	90	115	31x4	Yes*	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	3	PC	Sch	Del	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-F	I-R	Hyd	Ros	S-52	
Davis	91	118	32x4 ¹ / ₂	Yes*	Cont	8T	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	L	C	5	PC	Sch	Del	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-F	I-R	Hyd	Ros	S-52	
Dodge Brothers	116	116	32x4	Yes*	Own	D	4-3 ¹ / ₂ x4 ¹ / ₂	24.03	L	C	3	PS	Str	N.E.	D-Own	Own	M-Spi	1/2 Tim	4.54	E-R	I-R	None	Own	S-55	
Dorris	132	32x5	Yes*	Own	6-80	6-3 ¹ / ₂ x4 ¹ / ₂	38.40	L	C	7	PC	Str	Bos	D-Own	B-L	R-Spi	1/2 Tim	3.10	E-R	I-R	None	Ros	S-60		
Dort	27	115	31x4	Yes*	Fall	T3000	6-3 ¹ / ₂ x4 ¹ / ₂	23.41	I	C	3	PC	Car	Bos	D-Dtl	Own	M-The	Fli	4.66	E-R	I-R	None	Gem	V-50	
Duesenberg Straight	8	134	33x5	No	Own	8	8-2 ¹ / ₂ x5 ¹ / ₂	26.45	I	C	3	PC	Str	Del	P-Own	Own	R-Cli	1/2 Tim	4.00	I-F	E-T	Hyd	Lav	S-59	
Japan	C	124	32x4 ¹ / ₂	No	H-Sp	90	6-3 ¹ / ₂ x5 ¹ / ₂	29.40	I	C	3	PS	Str	Wes	D-B-L	B-L	M-Spi	F-Col	4.45	E-R	I-R	None	Jac	S-58	
Durant	A-22	109	31x4	Yes*	Cont	Spec	4-3 ¹ / ₂ x4 ¹ / ₂	24.03	I	A	3	PC	Til	A-L	P-Own	1/2 Tim	4.33	E-R	I-R	Mee*	War	S-50 ¹ / ₂			
Elcar	6-41	112	31x4	No	Lyco	CF	4-3 ¹ / ₂ x5 ¹ / ₂	21.03	L	A	5	PC	Zen	Del	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	I-R	Mee*	Ros	S-51
Elcar	6-51	113	31x4	No	Cont	7U	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Str	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	I-R	Mee*	Ros	S-51	
Elcar	6-61	114	32x4	Yes*	Cont	8R	6-3 ¹ / ₂ x4 ¹ / ₂	27.34	L	C	4	PC	Str	Del	P-B&B	W-G	M-Har	1/2 Sal	4.70	E-R	I-R	Mee*	Ros	S-52	
Elcar	8-80	127	32x6 ¹ / ₂	Yes	Lyco	8	8-3 ¹ / ₂ x4 ¹ / ₂	31.25	L	C	5	PS	Str	Del	P-B&B	W-G	M-M	1/2 Sal	4.71	E-F	I-R	Hyd	Ros	S-58	
Essex	6	110 ¹ / ₂	31x5.2	Yes	Own	6	6-2 ¹ / ₂ x4 ¹ / ₂	17.32	L	A	3	Sp	Ste	Bos	D-Own	Own	M-Spi	1/2 Own	5.60	E-R	I-R	None	Own	S-54 ¹ / ₂	
Flint	41	115	30x5.2	Yes	Cont	40	6-3 ¹ / ₂ x4 ¹ / ₂	23.44	L	C	4	PC	Til	A-L	P-Own	War	M-Spi	1/2 Ad	4.77	E-F	E-T	Hyd	War	S-50	
Flint	55	129	32x4 ¹ / ₂	Yes*	Cont	Spec	24-38	6-3 ¹ / ₂ x5 ¹ / ₂	27.34	L	C	7	PC	Str	Dej	P-Own	War	M-Spi	1/2 Ad	4.77	E-F	I-R	Hyd*	War	S-54
Ford	100	109	30x3 ¹ / ₂	No	Own	T	4-3 ¹ / ₂ x4	22.50	L	C	3	Sp	[Own]	Own	D-Own	Own	F-Own	1/2 Own	3.63	E-T	I-R	None	Own	O-43 ¹ / ₂	
Franklin	10 C	115	32x4.9	Yes*	Own	10-C	6-3 ¹ / ₂ x4 ¹ / ₂	25.35	I	A	7	PC	Str	A-K	P-M&E	Own	M-Spi	1/2 Own	4.73	E-T	E-R	None	Own	E-38	
Gardner	Series 5	112	32x4	Yes*	Lyco	CE	4-3 ¹ / ₂ x5	21.76	L	A	5	PC	Zen	Wes	P-B&B	M-Pet	M-Spi	1/2 Fli	4.80	I-R	I-R	None	Ros	S-51	
Gray	0	104	30x3 ¹ / ₂	Yes*	Own	R	4-3 ¹ /<																		



In addition to the unusual popularity created for Duco by word-of-mouth advertising, distinctive color advertisements in *The Saturday Evening Post* (such as reproduced above) have added thousands to the fast growing list of Duco enthusiasts.

THINK of the number of cars that now have DUCO finish!

A SAFE estimate of the number of cars that will have DUCO Finish by the end of this month is 120,000.

Of this number, approximately 35,000 are *old cars refinished* in Duco!

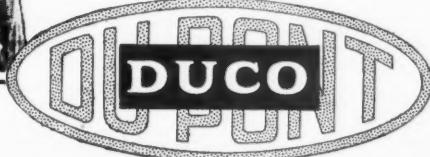
What does this mean? It means that car owners are not content to wait until they get *new* cars with Duco as the standard factory finish! They know about Duco—and they want it *now*. Your customers are going to look to you for Duco finish on their cars. Equip yourself to take care of this profitable refinishing business. Write today for full information.

E. I. DU PONT DE NEMOURS & CO., Inc.
Chemical Products Division: Parlin, N. J.

Duco is Factory Standard on: Oakland (all models); Old-Mobile (all models); Buick (all Sport Models); Cadillac (Roadster); Chevrolet (Touring de Luxe); Gardner (Special 1 Touring Models); Marmon (Sport Speedsters); Maxwell (Touring); Moon (Roadster Series "A"); Hupmobile (Roadster, Touring, 2-passenger Coupé, Club Sedan); Nash (Special Six Touring, Special Six Sedan, Advanced Six Sedan.)

* * * *

Over 200 Duco Refinishing Stations have already been established throughout the country. Training schools are being organized as rapidly as possible.



Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL	WHEELBASE (Ins.)	TIRES	ENGINE								Electrical System	Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES		Steering Gear	Rear Springs						
			Standard Size (Ins.) [†]	Standard Size (Ins.) [†]	Balloon	Equipment	Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.					Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make	Foot, Type and Location	Hand, Type and Location			
Paige	131	33x4 $\frac{1}{2}$	Yes*	Cont	Spec 70	6-3 $\frac{1}{2}$ x5	33.75	L	C	4	PC	Ray	A-K	D-Lon	W-G	M-Mec	$\frac{1}{2}$ Tim	4.90	E-R	I-R	None	Gem	S-61 $\frac{1}{2}$			
Peerless	70	126	33x6.2	Yes	Own	6-3 $\frac{1}{2}$ x5	29.40	L	...	7	PC	Job	...	D-Own	M-Spi	$\frac{1}{2}$ Tim	4.66	E-F	I-R	Hyd	Gem	S-54				
	133																									
Peerless	66	128	33x5	Yes*	Own	66	8-3 $\frac{1}{2}$ x5	33.80	L	C	3	PC	Bal	...	D-Own	M-Spi	$\frac{1}{2}$ Tim	4.90	E-R	I-R	Hyd*	Gem	S-60			
Pierce-Arrow	33	138	33x5	No	Own	33	6-4 $\frac{1}{2}$ x5 $\frac{1}{2}$	38.40	T	C	7	FP	Own	...	D-Own	M-Spi	$\frac{1}{2}$ Own	4.29	E-R	I-R	Mec*	Own	S-			
Pierce-Arrow	70	130	32x5.7	Yes	Own	"80"	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	29.40	L	C	7	PC	Own	...	D-Own	M-Spi	$\frac{1}{2}$ Tim	4.45	I-F	I-R	I-R	Mec	Gem	S-56 $\frac{1}{2}$		
Premier	6-D	126 $\frac{1}{2}$	32x4 $\frac{1}{2}$	Yes*	6-D	6-D	6-3 $\frac{1}{2}$ x5 $\frac{1}{2}$	27.34	I	A	3	PC	Str	...	D-Own	M-Blo	$\frac{1}{2}$ Col	4.70	E-R	I-R	Mec*	Own	S-57 $\frac{1}{2}$			
R&V Knight	11	124	32x4 $\frac{1}{2}$	No	Own	Kni	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	29.40	X	C	4	PC	Str	A-L	A-L	P-B-L	B-L	...	M-Spi	$\frac{1}{2}$ Tim	5.40	E-R	I-R	None	Jac	S-61
Reo	T6	120	32x6	Yes	Own	T6	6-3 $\frac{1}{2}$ x5	24.34	G	A	4	PS	Sch	NE	D-Own	[M-Own]	$\frac{1}{2}$ Own	4.70	E-R	I-R	None	Own	S-54 $\frac{1}{2}$			
Revere	M	131	32x4 $\frac{1}{2}$	Yes*	Mons	4	4-4 $\frac{1}{2}$ x6	30.63	H	A	2	PS	Str	Bos	Wes	D-B-L	B-L	...	M-Spi	$\frac{1}{2}$ Tim	3.44	E-R	I-R	None	Gem	S-58
Rickenbacker	C	117	32x4	Yes*	Own	C	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	23.44	L	C	3	PC	Str	Bos	D-Own	M-Mec	$\frac{1}{2}$ Own	4.63	I-F	E-T	Mec	Own	S-57			
Rickenbacker	A	121 $\frac{1}{2}$	33x4 $\frac{1}{2}$	Yes*	Own	A	8-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	28.60	L	...	9	PC	Zen	Bos	D-Own	M-Mec	$\frac{1}{2}$ Tim	5.10	I-F	E-T	Mec	Own	S-59			
Roamer	6-54-E	118	32x4 $\frac{1}{2}$	No	Cont	12XD	6-3 $\frac{1}{2}$ x5 $\frac{1}{2}$	29.40	L	A	3	PS	Str	Spl	Wes	P-B&B	B-L	...	M-Spi	$\frac{1}{2}$ Tim	4.60	E-R	I-R	Mec*	Jac	V-53 $\frac{1}{2}$
Roamer	138																									
Roamer	4-75-E	128	32x4 $\frac{1}{2}$	No	Dues	G1	4-4 $\frac{1}{2}$ x4 $\frac{1}{2}$	28.90	H	A	3	FP	Str	Bos	Wes	D-B-L	B-L	...	R-Sme	$\frac{1}{2}$ Tim	4.63	E-R	I-R	Mec*	Jac	V-55 $\frac{1}{2}$
Rollin	G	121	21x5 $\frac{1}{2}$	Yes	Own	G	4-4 $\frac{1}{2}$ x4 $\frac{1}{2}$	16.90	L	A	7	FP	Til	Con	D-Own	M-Spi	$\frac{1}{2}$ Own	4.72	E-F	I-R	Dit	Own	O-46 $\frac{1}{2}$			
Rolls-Royce	40-50	143 $\frac{1}{2}$	33x5	No	Own	40	6-4 $\frac{1}{2}$ x4 $\frac{1}{2}$	48.60	L	A	7	FP	Own	Bos	F	M-Own	$\frac{1}{2}$ Own	3.72	I-R	I-R	None	Own	V-54 $\frac{1}{2}$			
Stanley	750	130	33x5.7	Yes	Own	750	2-4 x5	13.00	X	C	2	PS	Non	Non	Bij	Non	Non			
Star	102	30x4.9	Yes	Cont	Spec	4-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	15.63	L	C	3	PS	Til	A-L	P-Own	M-Spi	$\frac{1}{2}$ Ad	4.87	E-R	I-R	Mec*	War	S-49 $\frac{1}{2}$				
Stearns-Knight	SKL4	119	33x4 $\frac{1}{2}$	No	Own	Kni	4-3 $\frac{1}{2}$ x5 $\frac{1}{2}$	22.50	X	C	4	PC	Sch	A-K	A-L	D-Own	R-Cli	$\frac{1}{2}$ Own	4.50	E-R	I-R	Hyd*	Own	V-50		
Stearns-Knight	6	130	33x5	No	Own	Kni	6-3 $\frac{1}{2}$ x5	25.35	X	C	4	PC	Joh	A-K	A-L	D-Own	R-Cli	$\frac{1}{2}$ Own	5.30	E-R	I-R	Hyd*	Own	V-50		
Sterling-Knight	125	32x4 $\frac{1}{2}$	Yes*	Own	Kni	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	25.35	X	C	7	FP	Str	Wes	D-Ful	R-Cli	$\frac{1}{2}$ Tim	4.66	E-R	I-R	Mec*	Ros	S-58				
Stevens-Duryea	G	138	33x5	No	Own	G	6-4 $\frac{1}{2}$ x5 $\frac{1}{2}$	47.25	L	C	4	PC	Str	Bos	D-B-L	M-Spi	F Tim	3.76	E-R	I-R	None	Ros	S-57 $\frac{1}{2}$			
Studebaker	Sta. Six	113	31x5.2	Yes	Own	EM	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	27.34	L	C	4	PC	Str	Wag	P-Own	R-The	$\frac{1}{2}$ Own	4.60	E-R	I-R	Hyd*	Own	S-50			
Studebaker	Spec. Six	120	32x6.2	Yes	Own	EL	6-3 $\frac{1}{2}$ x5	29.40	L	C	4	PC	Str	Wag	P-Own	M-Spi	$\frac{1}{2}$ Own	4.36	E-R	I-R	Hyd*	Own	S-56			
Studebaker	Big Six	127	34x7.3	Yes	Own	EK	6-3 $\frac{1}{2}$ x5	36.04	L	C	4	PC	Bal	Wag	P-Own	M-Spi	$\frac{1}{2}$ Own	3.69	E-R	I-R	Hyd*	Own	S-56			
Stutz	693-4	120	32x4 $\frac{1}{2}$	Yes*	Own	691	6-3 $\frac{1}{2}$ x5	29.40	I	C	3	PC	Str	Item	P-B&B	W-G	M-Mec	$\frac{1}{2}$ Tim	5.10	E-R	I-R	None	Gem	S-61 $\frac{1}{2}$		
Stutz	KLDH	130	32x4 $\frac{1}{2}$	No	Own	KLDH	4-4 $\frac{1}{2}$ x6	30.63	T	C	3	PC	Str	Del	D-Own	D-W-G	M-Har	$\frac{1}{2}$ Own	3.75	I-R	I-R	None	Gem	S-60		
Stutz	695	130	32x4 $\frac{1}{2}$	Yes*	Own	691	6-3 $\frac{1}{2}$ x5	29.40	I	C	3	PC	Str	Rem	P-B&B	W-G	M-Mec	$\frac{1}{2}$ Tim	4.90	E-R	I-R	Hyd*	Own	S-61 $\frac{1}{2}$		
Templar	122	33x4	No	Own			6-3 $\frac{1}{2}$ x5	27.34	L	C	4	PS	Til	Dyn	P-M&E	W-G	R-Sme	$\frac{1}{2}$ Sal	5.10	I-F	E-T	Mec	Ros	S-54		
Velie	60	118	32x5.2	Yes*	Own	56	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	24.38	I	C	4	FP	Str	Wes	P-B&B	Dur	M-Thi	$\frac{1}{2}$ Own	5.10	E-F	I-R	Hyd	Ros	S-55		
Westcott	4 ^a	125	32x4 $\frac{1}{2}$	Yes*	Cont	12X	6-3 $\frac{1}{2}$ x5 $\frac{1}{2}$	29.40	L	A	3	PS	Ray	Del	P-B&B	B-L	M-Pet	$\frac{1}{2}$ Tim	4.45	E-R	I-R	Mec*	Gem	S-59		
Westcott	4 ^b	120	32x4 $\frac{1}{2}$	Yes*	Cont	8R	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	27.34	L	C	4	PC	Str	De	P-B&B	W-G	M-Pet	$\frac{1}{2}$ Col	4.90	E-R	E-T	Mec*	Own	S-57 $\frac{1}{2}$		
Westcott	6	118	32x4	Yes*	Cont	8R	6-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	27.34	L	C	4	PC	Str	Del	P-M&E	W-G	M-Pet	$\frac{1}{2}$ Col	4.63	E-R	E-T	Mec*	Own	S-56		
Wills Ste. Claire. & B&B	121	32x4 $\frac{1}{2}$	Yes*	Own	[A68	6-3 $\frac{1}{2}$ x4	33.80	I	C	3	FP	[Zen	De	P-Own	M-Spi	$\frac{1}{2}$ Eat	4.45	I-R	E-F	I-B	[None	Own	S-54 $\frac{1}{2}$			
Willys Knight	127	32x6.0	Yes	Own	[B68																					
Willys Knight	64&E	118	33x4.9	Yes	Own	64	4-3 $\frac{1}{2}$ x4 $\frac{1}{2}$	21.03	X	C	3	PS	Til	A-L	D-Own	R-Own	$\frac{1}{2}$ Own	4.44	E-R	I-R	None	Own	S-55			
Yellow	0-4	109	32x4 $\frac{1}{2}$	No	Cont	V7	4-3 $\frac{1}{2}$ x5	22.50	L	C	3	PC	Zen	Bos	N-E $\frac{1}{2}$	D-B-L	B-L	Spi	$\frac{1}{2}$ Tim	4.90	E-R	E-T	None	Own	S-56	
Yellow	A-2	109	29x4 $\frac{1}{2}$	Yes	Cont	V7	4-3 $\frac{1}{2}$ x5	22.50	L	C	3	PC	Zen	Bos	N-E $\frac{1}{2}$	D-B-L	B-L	Spi	$\frac{1}{2}$ Tim	4.90	E-R	E-T	None	Gem	S-56	

ABBREVIATIONS—

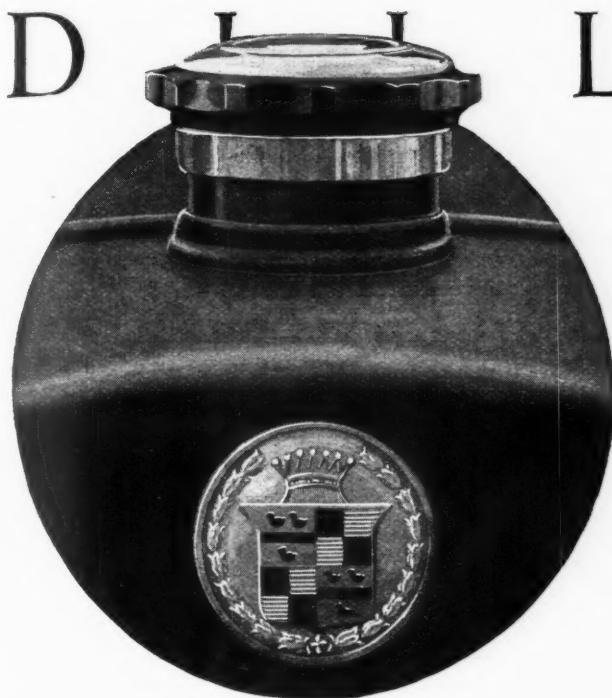
—Electric
+—Generator only
*—At extra cost
‡—On Phaeton models
A—Aluminum
Aust—Ansted
Ad—Adams
A-K—Awtar-Kent

D—Multiple Disk
Del—Delco
Det—Detroit
De J—De Jon
Dit—Ditwiller
Doo—Dooley
Dif—Difflaff
Dues—Duesenberg
Dur—Durston
Dyn—Dynto
E—Full Elliptic
F—Full Elliptic
I—Internal Four Wheels
R—Internal Rear Wheels
J—Three-Quarter Elliptic
Jac—Jacox
Jax—Jaxon
Joh—Johnson
Jon—Jones
K—Come
Kin—Kingston
L—L Head
Lav—Lavine
Lon—Long
L-N—Leece-Neville
Lyo—Lycoming
Mar—Marvel
Met—Metal
M & E—Merchant & Evans
G-L—Grant-Lees
Goo—Goodrich
H—Horizontal
Har—Hart
Hol—Holley
Hoo—Hoosier
H-Sp—Herschell-Spillman
Hyd—Hydraulic
Dur—Durston
Dyn—Dynto
E—Full Elliptic
F—Full Elliptic
FP—Full Pressure to all bearings including wrist pins
Full—Fuller
1/2 F—Semi-Floating
3/4 F—Three-Quarter Floating
G—Head and Side
G-D—Gray & Davis
Gem—Gemmer

Mec—Mechanics
Mons—Monson
Mun—Muncie
N—Platform
Non—None
N. E.—North East
N. W.—Northway
Nor—Northway
O—Special Type
Opt—Optional
P—Single Plate
PC—Pressure to all Crankshaft and connecting rod bearings
Pen—Penfield
Pet—Peters
Ple—Pilk
PS—Splash with Pressure
Q—Quarter Elliptic
R—Fabric
Ray—Rayfield
Rem—Remy
Roc—Rockford
Ros—Ross
S—Semi Elliptic
Sal—Salisbury
Sch—Schebler
Sel—Scintilla
Sco—Scoe
Sne—Sned
Sp—Circulating Splash
Spe—Special
Spi—Spieler
Spl—Splitdorf
S. E.—Standard Equipment
Sta—Standard
Ste—Stewart
Str—Stronberg
T—T Head
The—Thermoid
Thi—Thiemer
Til—Tillotson
Tim—Timken
Uni—Universal
V—Cantilever
W-G—Warner Gear
W-M—Willys-Morrow
Wag—Wagner
War—Warner
Weid—Weidely
Wes—Westinghouse
Wis—Wisconsin
X—Sleeve
Zen—Zenith

You can succeed with

C A D I L L A C

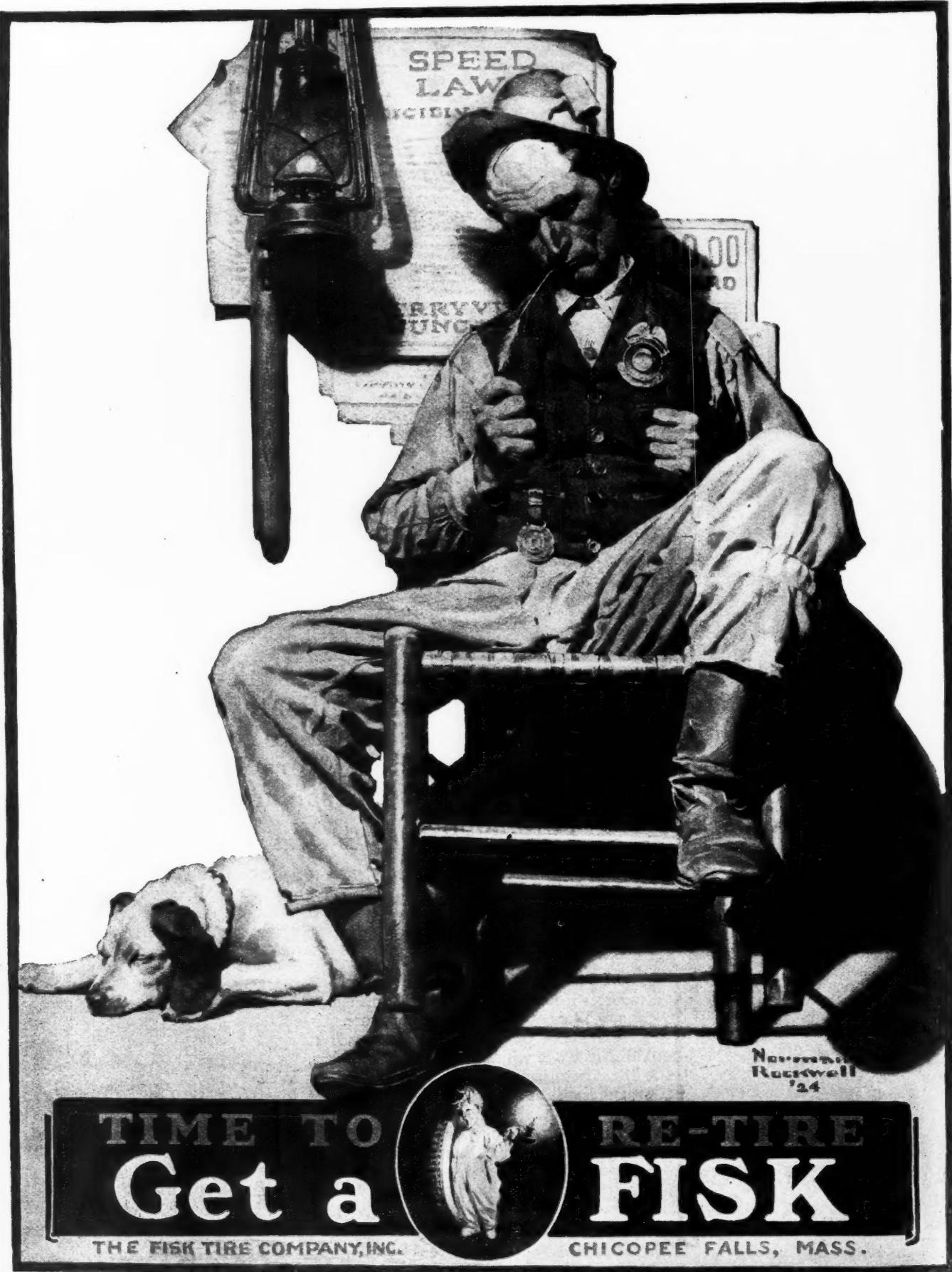


After all, an automotive Dealer's success depends very largely upon the public's estimate of his product. No Dealer needs to be told what people think of the Cadillac. Every Dealer knows it is more nearly *pre-sold* than any other similarly-priced automobile.

Complete information regarding the Cadillac Franchise will be given to you upon request.

Largest selling Car at Its Price or higher.
Resources Insuring Stability and Permanency.
Twenty Years of Successful Manufacture.
Enviable Public Good Will.
A Resale Value which Means Repeat Orders.
A Manufacturing Policy of Doing One Thing Well.
An Unblemished Reputation.
Standardized Service Charges.
Genuine Factory Co-operation.
Effective National and Direct Advertising.
A Product of Recognized Leadership.
Fair Prices with no Direct or Indirect Price-Cutting.
A Wonderful Factory, Wonderfully Equipped.
Able Executives in All Divisions.
A Highly Skilled Manufacturing Organization.

V-63



Copyright, 1924, The Fisk Tire Co., Inc.

These Painted Boards Are Working For You Everywhere—Every Day



What Plan Have You to Take Advantage of Advertising

THE experienced accessory dealer is interested only in nationally known lines of proved quality.

AC Spark Plugs and AC Speedometers are of proved quality—and they are nationally advertised through magazines, painted boards, newspapers and by many other means. This national advertising makes them well known to the public, reduces sales resistance and makes them easy for the

dealer to sell.

Dealers can greatly increase their business by watching AC's advertising, displaying AC merchandise, and by identifying their store more closely with the popularity and prestige of the AC line.

When they do this and follow it up by using the sales thoughts contained in the advertising, they then will get the full benefit of the AC national program.

*Sell AC Products—Their Quality and
Popularity Assure Demand and Profit*

AC Spark Plug Company, FLINT, Michigan

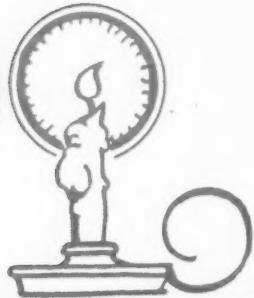
Makers of AC Spark Plugs—AC Speedometers

AC-SPHINX
Birmingham
ENGLAND

U. S. Pat. No. 1,135,727, April 13, 1915; U. S. Pat. No. 1,216,139,
Feb. 13, 1917. Other Patents Pending

AC-OLEO
Levallois-Perret
FRANCE

The
candle came
before electric
light |



The
horse before
the automobile |



The Balloon Tire — *Plus*

MURRAY Balloon Cords

The Last Word
in Balloon Tire
Construction



For Present Wheels Sizes to Fit Present Rims

Balloon Size	To Fit Present Rims Size
31 x 4.40 SS	30 x 3 1/4 SS
32 x 4.95 SS	31 x 4 SS
33 x 4.95 SS	32 x 4 SS
33 x 5.77 SS	32 x 4 1/2 SS
34 x 5.77 SS	33 x 4 1/2 SS

For Smaller Wheels Sizes for 20 inch and 21 inch Wheels

Regular Balloon Size	Rim Dia.
4.40 SS	21 inch
5.25 SS	21 "
5.25 SS	20 "
6.20 SS	21 "
6.20 SS	20 "
7.30 SS	20 "





before

Murray

Balloon

Cords

IN each case time has worked wonders. Rather than rush madly into the Balloon field, the builders of Murray Balloon Cords proceeded slowly—carefully. As a result the dealer can now offer—not just a balloon tire—but a tire with all the acknowledged balloon

advantages—*plus* those of super-construction and superior materials that have been individual to Murray Tires since their inception.

You must sell Balloon Tires—why not sell the best?

For further information write

MURRAY RUBBER COMPANY, Trenton, N. J.



The sales possibilities
for Peerless Distributors
and Dealers have doubled
in the last six months!
Doesn't that suggest a
real opportunity for you?

PEERLESS

PEERLESS DEALERS are PROSPERING

UP TO SIX MONTHS AGO, Peerless dealers had great sales possibilities with only the famous Peerless Eight to attract customers.

The introduction of the new Peerless Six doubled their field of operations and their possibilities for profit.

Now they have two different cars—two different price ranges—both leaders in their class—and both Peerless.

Today there is a greater advantage in selling Peerless cars than ever before. Perhaps there is a chance to represent Peerless in your city. It's worthwhile looking into. Write, wire or phone.

THE PEERLESS MOTOR CAR COMPANY, CLEVELAND, OHIO
Makers of the famous Peerless Eight and the new Peerless Six



L E S S

YOU WANT TO KNOW WHICH METHOD OF STORING PARTS PAYS YOU BEST

The following comparison helps you find out

LAPS Basic Systems

1. Bins shaped and sized to carry correct part in the correct quantity for various size dealers.
2. Bins are grouped by assemblies, and small parts can be stored in numerical order.
3. Save $33\frac{1}{3}$ to 50% floor space as compared to ordinary steel shelving units because stock carrying capacity is built to fit dealer's requirements.
4. Arrangement of bins in System simplifies inventory, balances stock and makes it easier to locate parts.
5. Reference to parts books only necessary by inexperienced clerk.
6. Dividers and shelves held in by bolts and nuts. Easy adjustment provided. No slotted dividers. Roll edge dividers eliminate rough edges of steel, thus preventing tearing of hands and clothing. Roll edge dividers provide stronger construction in unit and better appearance.
7. Expansion possible by addition of unit or units as and when desired.
8. The range of stock carrying capacity of individual systems is small. Systems are proportioned to the number of cars serviced by various size dealers. Thus dealers do not tie up money by purchasing systems too large for their needs.

Steel Shelving Units

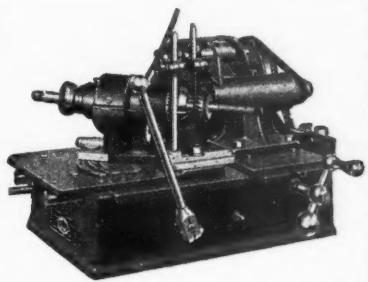
1. Bins built in assorted sizes. Stockman places parts in any bin having suitable size and shape.
2. Parts stored as size and shape will permit, not completely grouped by assemblies and not in complete parts book or numerical order.
3. Floor space wasted because carrying capacity of units has wide range, and is not built to fit dealer's requirements.
4. Inventory and location of parts are complicated by disarrangement of bins.
5. Reference to parts book, card bin records or index file necessary by stock clerk to find parts.
6. Shelves held in place by bolts and nuts. Dividers held in place by bolts and nuts or rivets, or are of slotted construction. No roll edge dividers. Rough edges of steel are exposed.
7. Expansion possible by addition of unit or units as and when desired.
8. Stock carrying capacity of single unit has wide range. Small dealer thus has to purchase more shelving than his immediate needs require and ties up money needlessly.

Read—Compare—Buy Intelligently

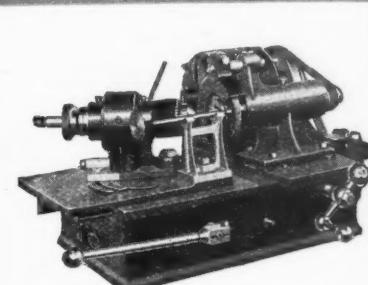
DAVID LUPTON'S SONS CO.
Sole Manufacturers of LAPS Systems
SALES OFFICE, 2631 Woodward Ave., DETROIT
Main Office & Factory, Philadelphia



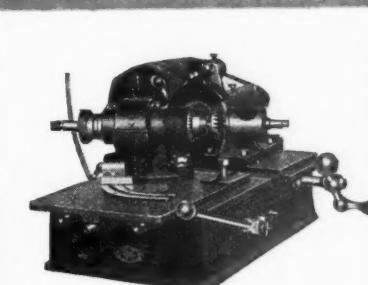
VALVE FACE GRINDING MACHINE



Sharpening Valve Seat Reamer



Truing Valve Stem Ends



Reseating Valve Cage



Grinding Valve Face

THIS power-driven machine introduces a new standard of accuracy and speed on the important jobs of engine repairing. Saves time and labor, increases volume of work done. Handy and easy to use; simple, quick adjustments.

Grinds any valves up to 4½ inches, with stem capacity of $\frac{5}{8}$ in. and under. It has marked adjustment stops for valve angles of 30, 45 and 60 degrees but grinds at any other angle required. When valve stem is pushed through chuck into machine it fits into a tapered end which acts as a guide and a stop on end of valve stem.

Sharpens any Sioux Valve Seat Reamers.

Reseats any removable valve cages, by chucking the reamer on the upper end of the pilot stem. In this work the speed of the chuck can be regulated to the most favorable rate for facility and accuracy.

Truing valve stem ends is a quick, easy job with this machine. With right hand hold valve stem in V bracket with end against emery wheel; with the left hand hold valve head and twist valve while grinding to do good job. No need to fasten down valve stem. You can grind the ends of 12 valves in about one minute.

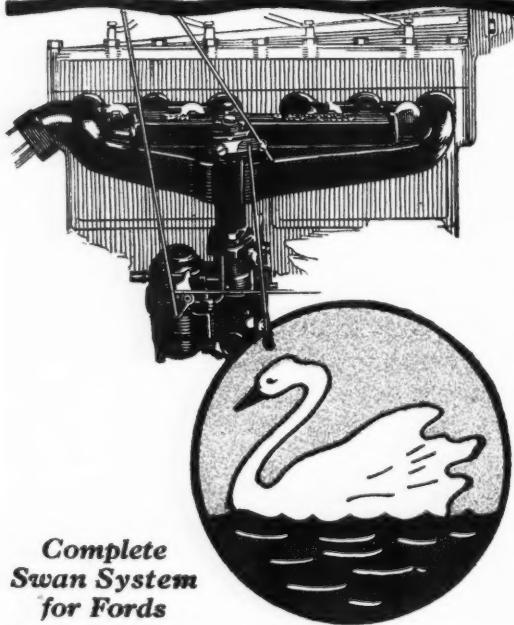
Equipped with a standard make chuck and driven by a $\frac{1}{4}$ h.p. electric motor. Write for full information.

Ask Your Jobber about It

ALBERTSON & CO.
Sioux City . . . Iowa



What an improvement in motor performance!



Complete
Swan System
for Fords

\$18 95

Also special models
for Chevrolets,
Buicks, Nashes,
and Oaklands.

The Swan System makes a big improvement in ANY car. That's why so many of the new models of well-known makes are coming out Swan-equipped.

HERE'S A SYSTEM of carburetion that's really designed for present-day fuel. Moreover, it does everything we claim for it—and more!

What interests you most is this. A special model has now been developed for Fords—a system that actually gets more out of that wonderful little Ford motor than you ever thought possible.

The Swan System is not a cure-all but—on any Ford that's mechanically right, it will produce more power and *much smoother power*. It gives a Ford the ability to crawl through dense traffic on high without the slightest tendency to "choke" or "buck." It means sweet, even action at all speeds—and a "pick-up" like a Six. And what many people consider most important, the Swan System will positively save 20% to 30% in gas.

These are strong statements. And they are 100% true!

The Swan System does not depend on carburetor performance alone. It provides a proper mixture of the kind of gas we get today, and then delivers it in uniform, equal proportions to each cylinder.

Now, here is what the Swan System means to you. With the special Ford model and four other re-installation outfits, you can serve more than three cars out of every five in your territory, and materially improve the performance of each one of them.

Demonstration proves more than conversation. Make us prove that everything we say about the Swan System is true. Then you'll recognize the tremendous possibilities from the standpoint of sales.

Write us now for complete information. Many of the country's leading service stations have taken on the Swan proposition. A letter, wire or phone call will bring the details to you.

THE SWAN CARBURETOR COMPANY, Cleveland, Ohio
Subsidiary of The Perfection Heater & Mfg. Co.

Swan System

Carburetor and Fuel Distributor

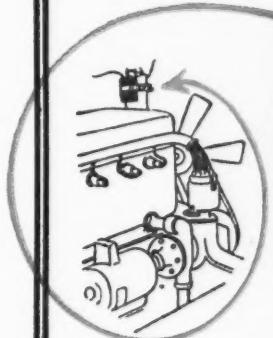
VISIBLE NIGHT and DAY

MOUNTED on the instrument board—the logical place for a motor heat indicator—Safe-T-Stat shows exact engine temperature night and day in any weather. It takes temperatures direct from the motor and registers them accurately regardless of weather or radiator conditions. Moreover, it is theft-proof and needs no lock.

SAFE-T-STAT

ENGINE HEAT INDICATOR

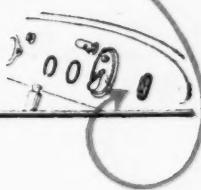
Always Accurate
Theft-Proof



Takes the temperature
direct from the engine



One Model
fits all cars



—and shows it on the
instrument board

Do not confuse Safe-T-Stat with any other type of heat indicator actuated by vapor or by fluid or gas pressure systems. It is electrically controlled and is the one device that registers true temperatures of motors cooled by both thermo-syphon and pump systems.

SAFE-T-STAT is quickly installed. No tapping of the motor block is required. It operates indefinitely without adjustment or expense. One model fits all cars. If your jobber has not yet stocked Safe-T-Stat, write us direct.

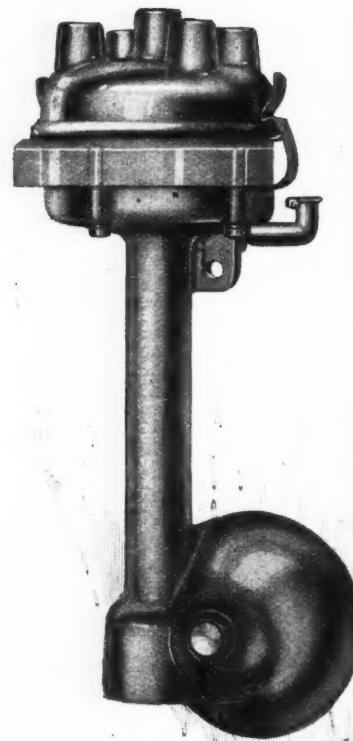
The SAFE-T-STAT Co., Inc.
PHILADELPHIA

FACTORY
57th and Westminster Ave.

GENERAL OFFICES
Drexel Building

ATWATER KENT

SCIENTIFIC IGNITION



INCREASED power, and flexible motor performance under the most varied conditions are ignition advantages of the more expensive cars which are now enjoyed with the ATWATER KENT equipped Ford.

From the Standpoint of
Sales and Profits

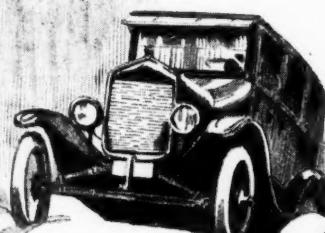
THE growing preference of Ford owners for ATWATER KENT Ignition as a replacement unit makes it a most attractive product from the standpoint of sales and profits.

More and more, dealers throughout the country realize this, and are writing to us for literature and discounts.

ATWATER KENT MANUFACTURING COMPANY
4957 STENTON AVE., PHILA., PA.

Price
\$10.80

*Including cables
and fittings*



Over 100,000 Stromberg Carburetors and Hot Spots Sold! for Fords!

A Carburetor sales record never before equaled—and made possible only by the fact that the STROMBERG CARBURETOR and HOT SPOT for Fords deliver more mileage—more power—than any other Carburetor offered. It makes possible quicker getaway—and much easier starting—four great essentials that every Ford owner is looking for.

DEALERS—your customers are all familiar with the flexibility and smoother operation that is unfailingly brought about by Stromberg equipment. Be in a position to meet the enormous demand that Stromberg performance is creating.

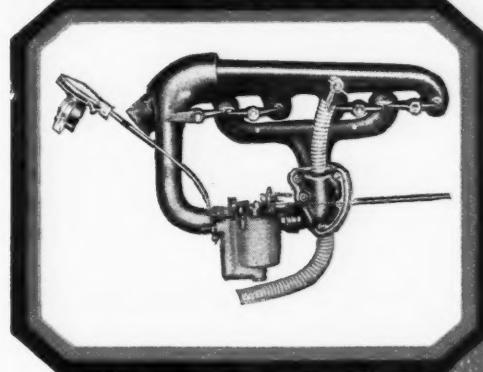
Decide today to build up a permanent and profitable business through the sales of this marvelous Carburetor. If you are a live dealer we have a very interesting sales plan for you. Write today for complete information.

THE STROMBERG MOTOR
DEVICES CO.

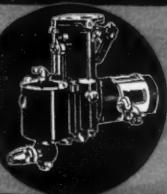
Dept. 927A

64 East 25th Street

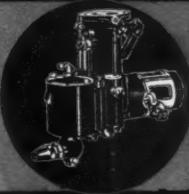
Chicago, Ill.



More than 135 Passenger Car and Truck Manufacturers use Stromberg as standard equipment.



New **STROMBERG** Does it!
CARBURETOR



1925 Contract is

**It's Out—It's New—It's Generous
to Dealers—It's Written on the
Golden Rule Basis—It Gives**

The Money Side

Willys-Overland has increased dealers' discounts all along the line. The new Willys-Overland discounts are superior to those offered by eleven out of the first fifteen manufacturers in the industry—big discounts that are really much bigger than they seem when considered in the light of *volume sales*. Big discounts alone mean nothing—but when coupled with big volume, they mean *big profits*.

The Human Side

The entire history of Willys-Overland has been a history of fairness to dealers. Mutuality of interest shows up in all the relations between factory and dealer—and each new year strengthens Willys-Overland's fair-handed policies toward dealers. No cracking of the whip over dealers' heads. No overloading. Willys-Overland treats every dealer as a partner in the same cause, as a member of one great family united by the ties of success.

Two Lines in One

Under *one* contract, dealing with *one* factory, you have two complete lines of cars—models for everybody. It is easy to graduate Overland owners into the Willys-Knight class. Many an automobile dealer, seeing sales lost by having only one line and a few models to offer, is tempted to take on additional lines. His affairs are immediately complicated. Willys-Overland gives you the advantages of two lines with none of the entanglements.

Prices Match Purses

Overland and Willys-Knight prices are not just nominally popular, but popular with the public. And they ought to be—for they are shaded down to where competition worries and wonders how we do it. The price range, beginning with the Overland Chassis at \$425 and running up to the big, luxurious Willys-Knight 7-pass Sedan at \$2095, blankets over 90% of price requirements of all automobile buyers.

WILLYS-OVERLAND, INC., TOLEDO, OHIO

WILLYS-

Extra Good News!

Dealers New Advantages, New Protections, and a Commanding New Position in Their Field

Vibrationless Willys-Knights

By securing American rights to the wonderful new Lanchester Balancer, invented by the builder of one of the most expensive cars in Great Britain, Willys-Knight gives America an entirely new conception of vibrationless engine-running. With this revolutionary device as standard equipment, Willys-Knights have the unique distinction of being free from vibration at all engine speeds.

All-Steel Overlands

In line with today's need for greater strength, safety and long life, Overland has adopted all-steel bodies for both closed and open models. Steel eliminates wooden body posts that completely hide a motor car two seconds away. Drivers have fully 50% more vision — which means safer driving. In this age of steel, the new All-Steel Overlands are more popular than all Overlands of other years.

A Real Job of Advertising

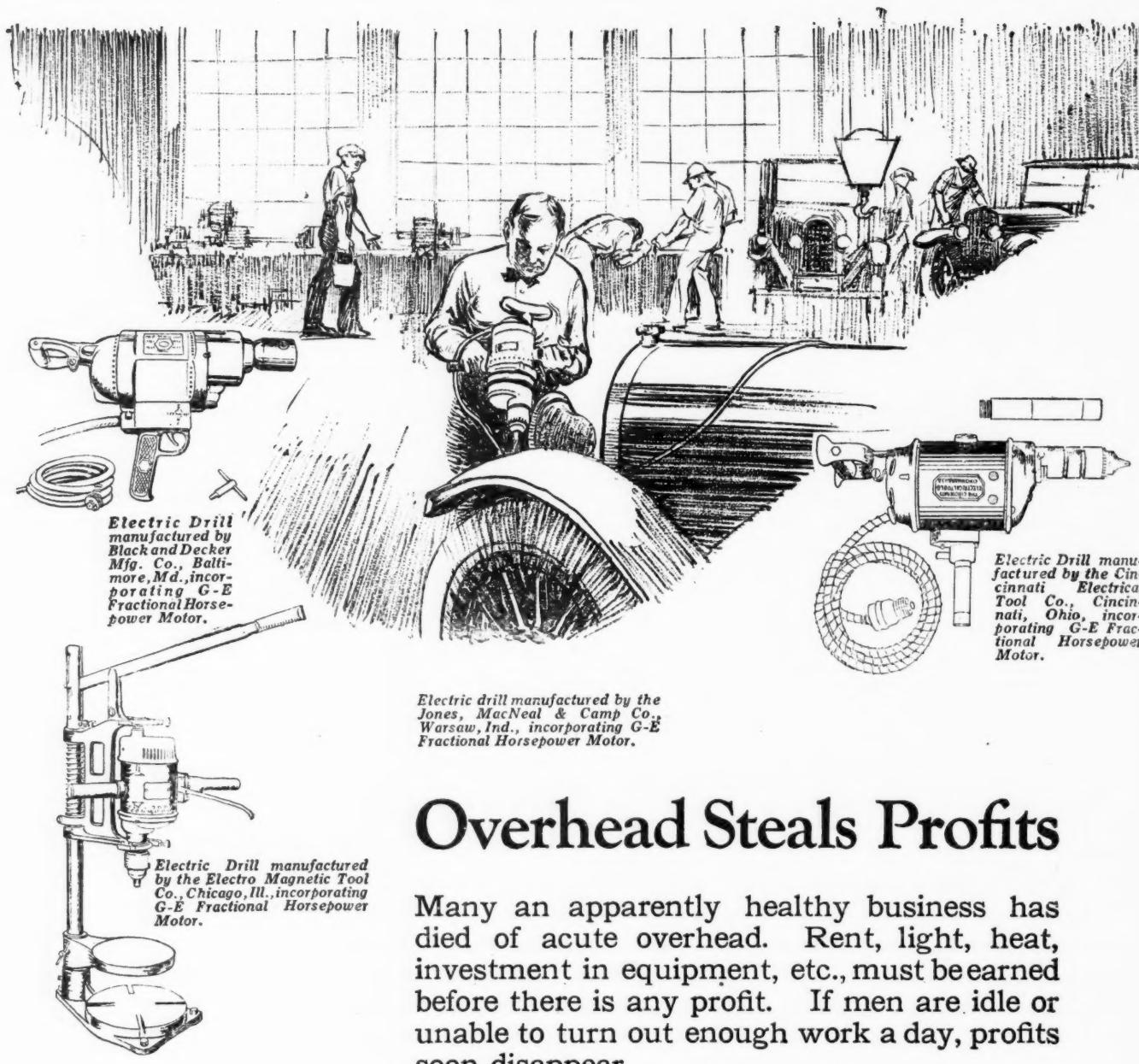
And, of course, Willys-Overland is continuing under the 1925 franchise the same big job of advertising it has always done for dealers. Dominating two-page color spreads in the Saturday Evening Post — full pages, many in color, in the leading magazines — a great newspaper campaign in the leading trading centers — direct mail — every kind of advertising that will help dealers make real money.

You Keep Your Profits

Finally, the Willys-Overland merchant has the bulge on other motor car dealers because *he can keep the money he earns*. The cars don't eat up his profits in free service—and the factory doesn't tie up his profits by forcing him to overload. The Willys-Overland merchant gets financing help—a square deal in every way. Write for the inside facts and figures of this new money-making franchise.

WILLYS-OVERLAND SALES CO. LTD., TORONTO, CANADA

OVERLAND



Overhead Steals Profits

Many an apparently healthy business has died of acute overhead. Rent, light, heat, investment in equipment, etc., must be earned before there is any profit. If men are idle or unable to turn out enough work a day, profits soon disappear.

Dependable motor-driven tools will make your men's time more productive, cut down the overhead per job and help you show a good balance on the right side of the ledger.

Leading manufacturers have selected G-E fractional horsepower motors for their machines because of their recognized quality and proved dependability.

When you buy a motored tool make sure it has a motor with a reputation for service.



Fractional H/P Motors

"Make Good Machines Better"

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, FRACTIONAL HORSEPOWER MOTOR SALES, FT. WAYNE, INDIANA

55B-175

26,000,000 Advertisements
seen 104,000,000 times



That is one
reason it pays
to specialize on

Thermoid
Brake Lining

1924 Will Break All Records for Motor Accidents!

THE last census figures showed that one out of every 1000 cars single car escaped an accident of some kind. It is safe to say hardly a single car to motorist or pedestrian to a crumpled mud guard. With 15,000,000 cars in operation this year, there will be at least 15,000 serious mishaps. The total number of accidents will stagger the imagination!

What can you do to protect yourself against this ever-increasing risk? You can have good brakes!

Call on a "brake specialist"—a garage man—today. Let him inspect your brakes. If he is a "Thermoid" garage man, so much the better. Then if your brakes need relining, you are assured of a lining that grips from the moment it is installed until worn to wafer thinness. A lining that gives you at least 40 per cent longer service. Make "brake inspection" a regular habit from now on. It is the best and safest accident *prevention* insurance you can have!

Thermoid Rubber Company, Trenton, N. J.

Members of the Good Transmission League, Phonofilm Corp., Thermoid-World's Universal League.

Thermoid
Hydraulic Compressed
Brake Lining



This sign on your shop says to the motoring public:

"I am the brake specialist you have read about in the Thermoid advertising. Stop and let me fix your brakes."

Suppose Thermoid was Not any Better than Ordinary Linings?

SUPPOSE Thermoid did not contain 40 per cent. more material than the ordinary lining. Suppose Thermoid did not give 40 per cent. longer service. Suppose there were a dozen linings just as good. It would still pay you to specialize on Thermoid and make your shop a Thermoid Service Station.

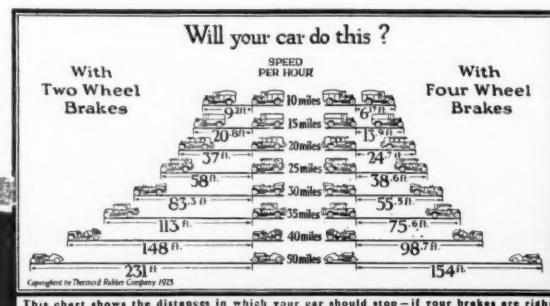
Why? Because, before the end of the year, 26,000,000 Thermoid advertisements will have been seen 104,000,000 times. Because such publications as *The Saturday Evening Post*, *Motor*, *Motor Age*, *Automobile Trade Journal* and others absolutely blanket the motorists and "trade" throughout the nation with Thermoid publicity.

You know as well as we do that such overwhelming publicity would make a big seller of a product of even ordinary merit. But when you consider that this volume of advertising is being put behind Thermoid, with its known and proved superiorities—Why not get *your* share of the largest brake lining business in America?

THERMOID RUBBER COMPANY, Trenton, N. J.

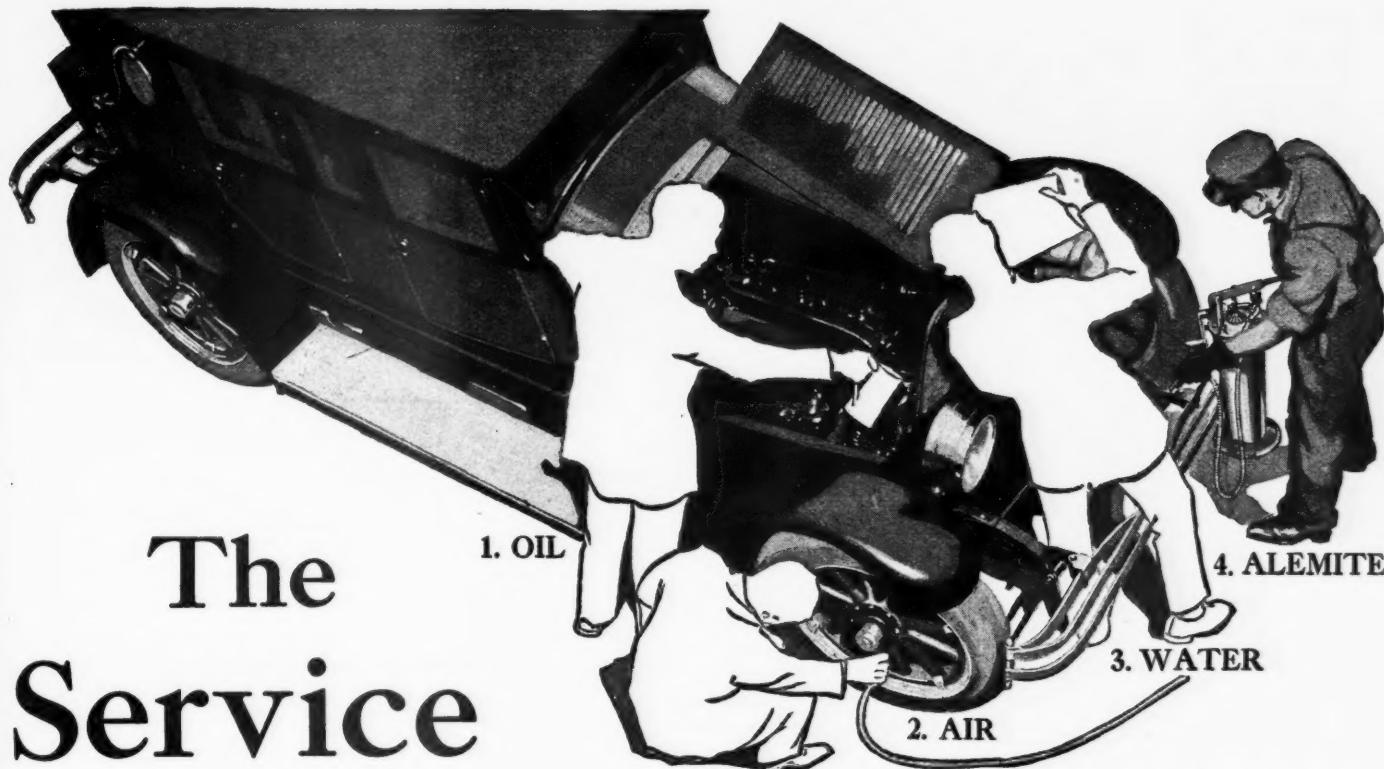
New York
Detroit
Seattle
Boston
Cleveland
Chicago

Los Angeles
Atlanta
Kansas City
San Francisco
London
Paris
Turin



MAKERS OF
*Rexoid Transmission
Lining, Thermoid Tires,
Thermoid-Hardy
Universal Joints*

Thermoid *Hydraulic
Compressed* **Brake Lining**



The Service that brings more trade

Free Air, Water, Crank Case Service, Sure! But don't overlook Chassis Lubrication.

Here's the new service that all motorists are looking for today. In Garage, Filling Station, Car Dealer's.

Get People In

Read what M. A. Decker, Manager of the Argo Filling Station of Kansas City, Mo., says. Alemite Service increased the total business of his station over 200%.

"If I were asked for an opinion as to the best way to increase filling station business I would say—'Get the people into your place, by giving service.' I cannot recommend the Alemite method of getting business too highly."

\$10 Per Day

The Peerless Oil and Refining Co. filling station at Garnett, Kans., a town of only 2,300 population, made over \$10 per day the first two days on chassis service alone. In addition, equipped 7 cars with Alemite. Old established

stations average as high as \$200 and \$300 per week.

Small Investment

For \$200—less if you already have a rack—you can now install the Alemite Giant Compressor and fast service equipment that will enable you to give Chassis Service without extra help. Write now for full details. Over 10,000 stations the country over have installed this since January 1st.

Write Today

Alemite is backed by the largest advertising campaign in the automotive equipment field. Every other car passing your place, Fords excepted, is Alemite equipped. Write today for this book "How to Go into the Lubricating Service Business." Just enclose the handy coupon. No obligation whatever.

THE BASSICK MFG. COMPANY
2662 North Crawford Avenue
Chicago, Illinois

Canadian Factory: Alemite Products Co. of Canada, Ltd.
Belleville, Ontario

A Bassick-Alemite Product

ALEMITE

High pressure lubricating system

"Reg. U. S. Pat. Off."

THE BASSICK MFG. COMPANY

2662 North Crawford Ave., Chicago, Illinois

Gentlemen: Please send me without obligation your free book, "How to Increase Your Profits 25 Per Cent."

Name.....

Address.....

City..... State.....

Moon Shows in Rhode

COMPARISON OF REGISTRATIONS . . . JUNE, 1924 & 1923

Statistics by Rhode Island Automobile Dealer's Assn.

	1924	1923		
FORD	790	793	COLUMBIA	4
BUICK	157	193	DURANT	4
CHEVROLET	123	129	ELCAR	4
DODGE	116	152	GARDNER	4
STUDEBAKER	68	59	PIERCE ARROW	4
NASH	58	81	JORDAN	3
MAXWELL	56	78	ROLLIN	3
OVERLAND	42	48	VELIE	3
ESSEX	33	36	YELLOW CAB	3
MOON	31	0	LINCOLN	2
FLINT	31	21	MARMON	2
CADILLAC	29	0	ANDERSON	1
HUDSON	24	18	APPERSON	1
OAKLAND	23	37	AUBURN	1
OLDSMOBILE	19	27	BAY STATE	1
REO	19	18	CASE	1
JEWETT	18	25	LIBERTY	1
HUPMOBILE	17	34	RENAULT	1
STAR	15	34	STEARNS-KNIGHT	1
PACKARD	14	48	STUTZ	1
CLEVELAND	13	22	WHITE BUS	1
FRANKLIN	10	18	CHALMERS	0
PAIGE	10	11	STEPHENS	0
WILLYS-KNIGHT	10	5	ELGIN	0
WILLS-ST. CLAIRE	9	18	DAVIS	0
RICKENBACKER	8	3	DIXIE	0
WESTCOTT	8	19	FIAT	0
EARL	8	8	LAFAYETTE	0
PEERLESS	7	5	MC FARLAN	0
CHANDLER	7	8	PHAETON	0
COLE	6	8	ROLLS ROYCE	0
HAYNES	6	4	VIM	0
DORT	6	13	WINTON	0
GRAY	5	14		
R-LANG	5	11	TOTALS	1,854
	0		TOTAL DECREASE	3,154 300

Moon car registration in June, 1924 tied for tenth place . . . They exceeded at least some fifteen cars whose estimated annual production is greater than Moon.

Moon registrations for the first six months of 1924 in Rhode Island exceeded the registrations for 1923, although there was a decrease in the total of car registrations for that period.

Can you show a like increase in *your* line, in *your* territory?

If not, isn't it the smart thing to look into a franchise like Moon's . . . that does . . . and to find out why Moon dealers get theirs, year after year, no matter what the general attitude of the buying public.

MOON

Big Increase Island . . .

Moon Dealers Show Gains for 1924

FROM January to June, as everybody knows, was a period of the most crucial competition . . . It was the hardest selling season the industry has ever known.

Yet in every one of these months Moon dealers showed an increase over the corresponding months of 1923 . . . And that in the face of the fact that in 1923 Moon jumped twelve places in rank . . . among the top-notch sellers of the industry.

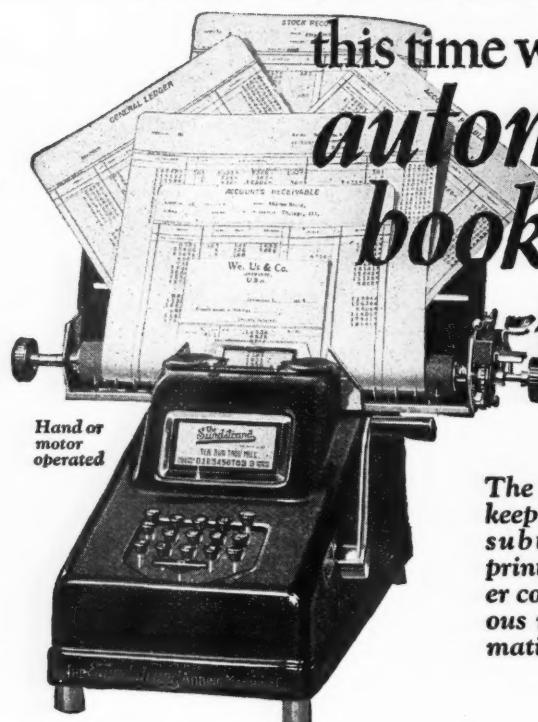
Can you tell a similar story about the car you are handling? If not, isn't it good business to figure on Moon as the car to tie your energies to?

There are sound reasons behind the above facts. It may mean a lot of money to you to find out exactly why the Moon contract is a continuous net-profit asset to any dealer of character and industry.

MOON MOTOR CAR CO., ST. LOUIS, Stewart McDonald, Pres.

MOON

-and again
Sundstrand scores
 this time with a low cost
automatic
bookkeeping
machine



The Sundstrand Bookkeeping Machine adds, subtracts or simply prints figures in the proper columns of your various record sheets, automatically as indicated

THE carriage automatically cross-tabulates, stopping as "ordered" by the instantly changeable stop plates, to record old balance—date—folio number—debits—credits—stock, in and out—deposits—withdrawals, etc.—all, including the newly computed balance, in the proper columns.

The operation is *simplicity itself*—typically Sundstrand—*nothing new to learn*. Simply write the amounts on the keyboard, touch motor bar or pull operating lever. The right column of the record sheet is in place and the wanted machine functions are automatically performed. Like its famous forerunner, the Marvel Model Direct Subtraction Sundstrand, this new Bookkeeping Machine is portable—desk size. *Subtracts direct* with 100% printed proof in one operation. Automatic shift multiplication. One hand control. Only ten keys. Visible. A speedy, low-cost service for all record work—bookkeeping, straight adding, subtracting, multiplying, dividing, checking invoices, extending inventory, stock records, calculating. Instantly adapted to *your* records. An all-purpose machine at a surprisingly low price. Let us explain its endless scope of usefulness—how it can serve you. Write for descriptive booklet. Address Dept. M-9.



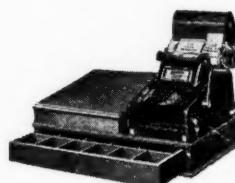
Sundstrand



SUNDSTRAND ADDING MACHINE COMPANY, Rockford, Illinois, U. S. A.
 Sales and Service Stations everywhere in the United States and foreign countries

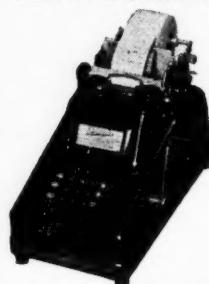
See this new machine at New York Business Show, 165th Armory, Oct. 20 to 25, 1924

or perhaps
 you need
 one or more
 of these—



Sundstrand
COMBINATION
CASH REGISTER

A complete retail store service in one machine at one low cost—cash register and adding machine. Credit file furnished at slight extra cost. Saves hours of time, guards against errors, protects profits. Classifies sales by clerks and departments. Makes a nonerasable record. *Forces* correct indication and recording of cash, credit, paid-out, etc. You can read cash totals at any time. Tape rewinds and locks in machine. Famous 10-key Sundstrand Adding Machine—adds, multiplies, divides, etc. Prevents errors in checking sales slips and inventory sheets, footing ledger, bank balances, etc. Range—1c to \$99,998.99.



Sundstrand
MARVEL
MODEL 20
Direct
Subtractor

Performs all calculations with only ten keys. The hand does not have so far to travel. Simply press the subtractor key and machine subtracts direct, furnishing 100 per cent printed proof. Portable—desk size—visible writing—automatic shift multiplying—adding—dividing—figuring. All in one machine at one low cost.



Sundstrand
FIGURING MACHINE

Has all the features of the Sundstrand Marvel Model 20 with the exception of the direct subtraction feature.

Send the coupon for full details of the machine in which you are interested.

Sundstrand Adding Machine Co.,
Rockford, Ill., Dept. M-9.

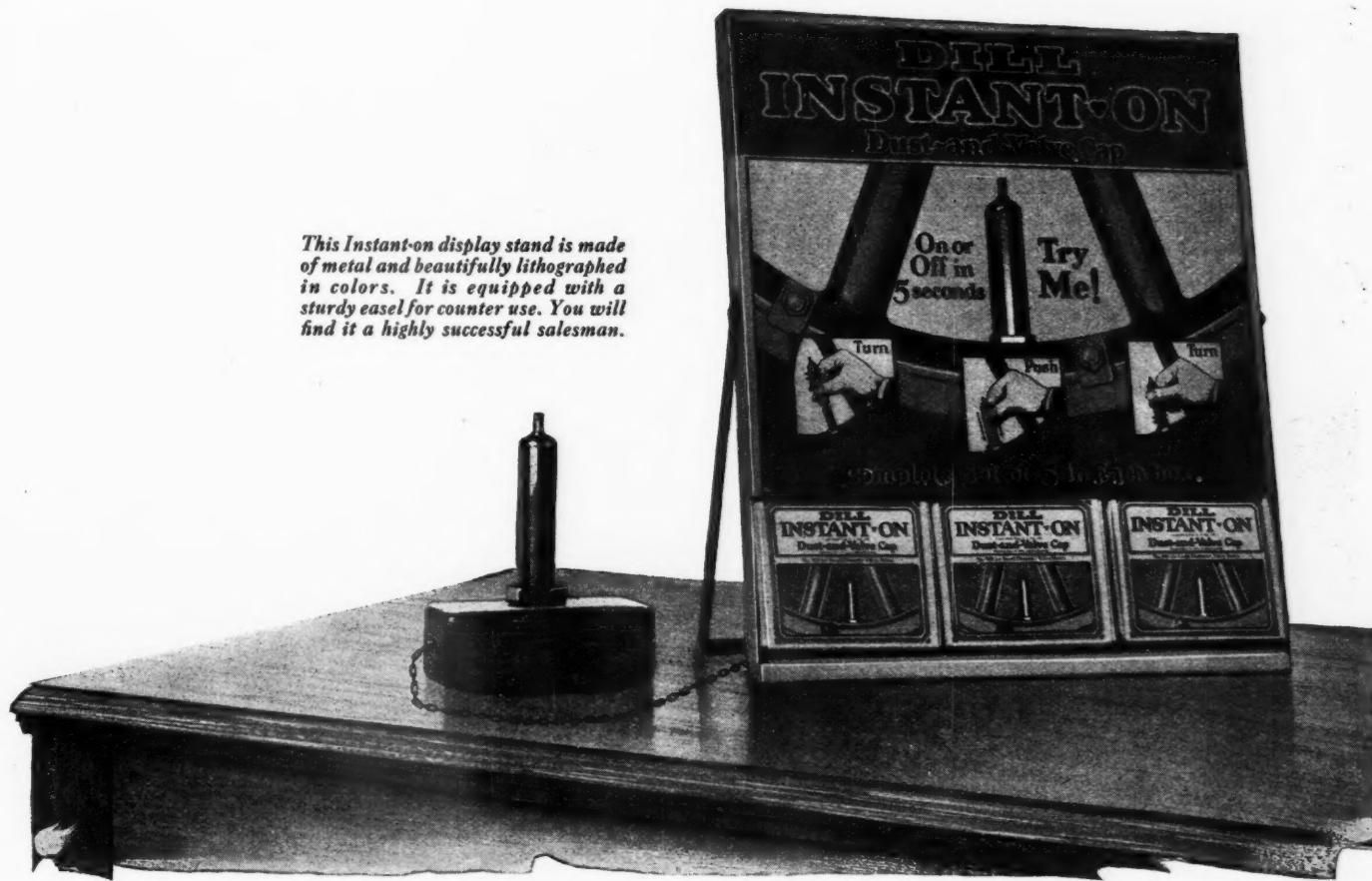
Send me complete information concerning the machine I have checked.

Combination Cash Register Marvel Model 20 Direct Subtractor
 Figuring Machine

Name _____

Address _____

City _____



Instant Sales on Instant-ons!

It's remarkable how quickly Instant-ons sell from this new metal display stand. Customers just naturally pick up the unique hand testing device—a polished section of wheel rim. They try the Instant-on for themselves. They learn the "turn, push, and another turn" way of putting on this valve and dust cap. A handy set of five Instant-ons is right before them on the counter, ready to take along, and the sale is made.

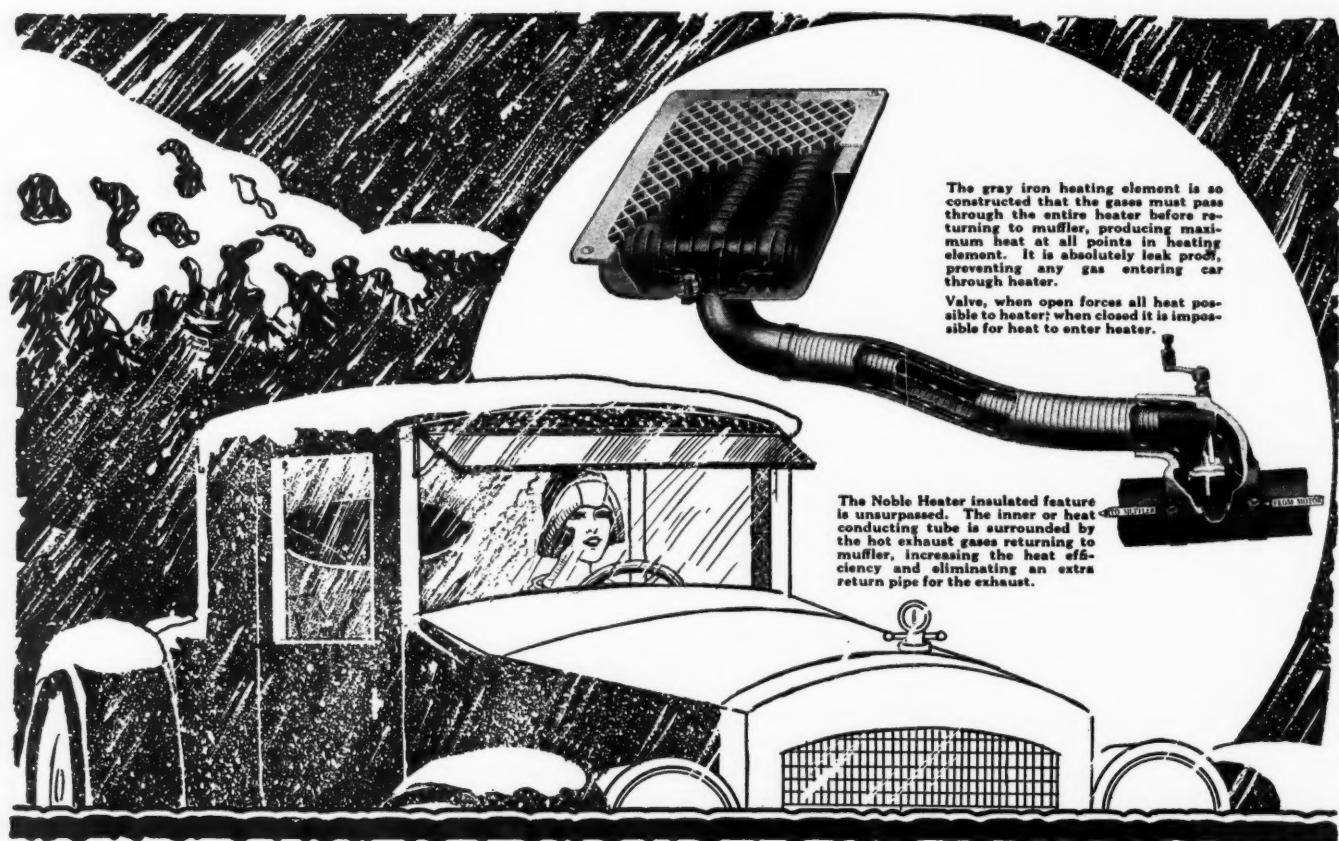
The stand holds a dozen sets of Instant-ons, each in an attractive box. The dozen, stand and all—cost you \$8.00 and sell for \$1.00 each—a clean profit of 50%—without sales effort on your part.

Prove to yourself how easy these sales are made. An order of trial display from your jobber will start you. If he can't supply you, write to us and we'll see that your order is filled.

THE DILL MANUFACTURING CO., Cleveland, O.

Also Manufacturers of Dill Standard Tire Valves and Dill Valve Insides
Manufactured in Canada by The Dill Manufacturing Company of Canada Ltd., Toronto

DILL
Tire Valves and Valve Parts

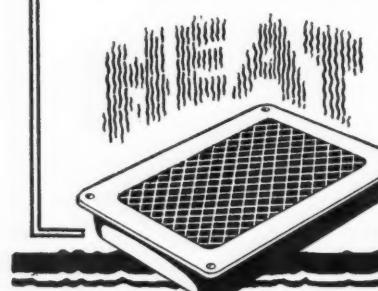


A Car HEATER ~ Not just a foot warmer **Noble Heater**

**Seven Reasons
why dealers make
more money with**

Noble Heaters

1. Simple, compact and efficient
2. Ninety-five per cent of motor heat radiated in car.
3. Odorless - construction absolutely leak proof.
4. Noiseless operation - exhaust returns through muffler.
5. Simple, handy control - "on" and "off" floor button.
6. Fits 90 per cent of all makes of cars, with only 4 valve sizes.
7. Easy to install, moderately priced, pays a real profit.



Car owners want cold weather comfort when they buy a car heater. They want heat and plenty of it, not only when it's merely chilly, but when the thermometer's down at zero.

With the Noble Heater, they get it! Get it the coldest day! There is heat and plenty of it *the Moment the Valve is Opened.*

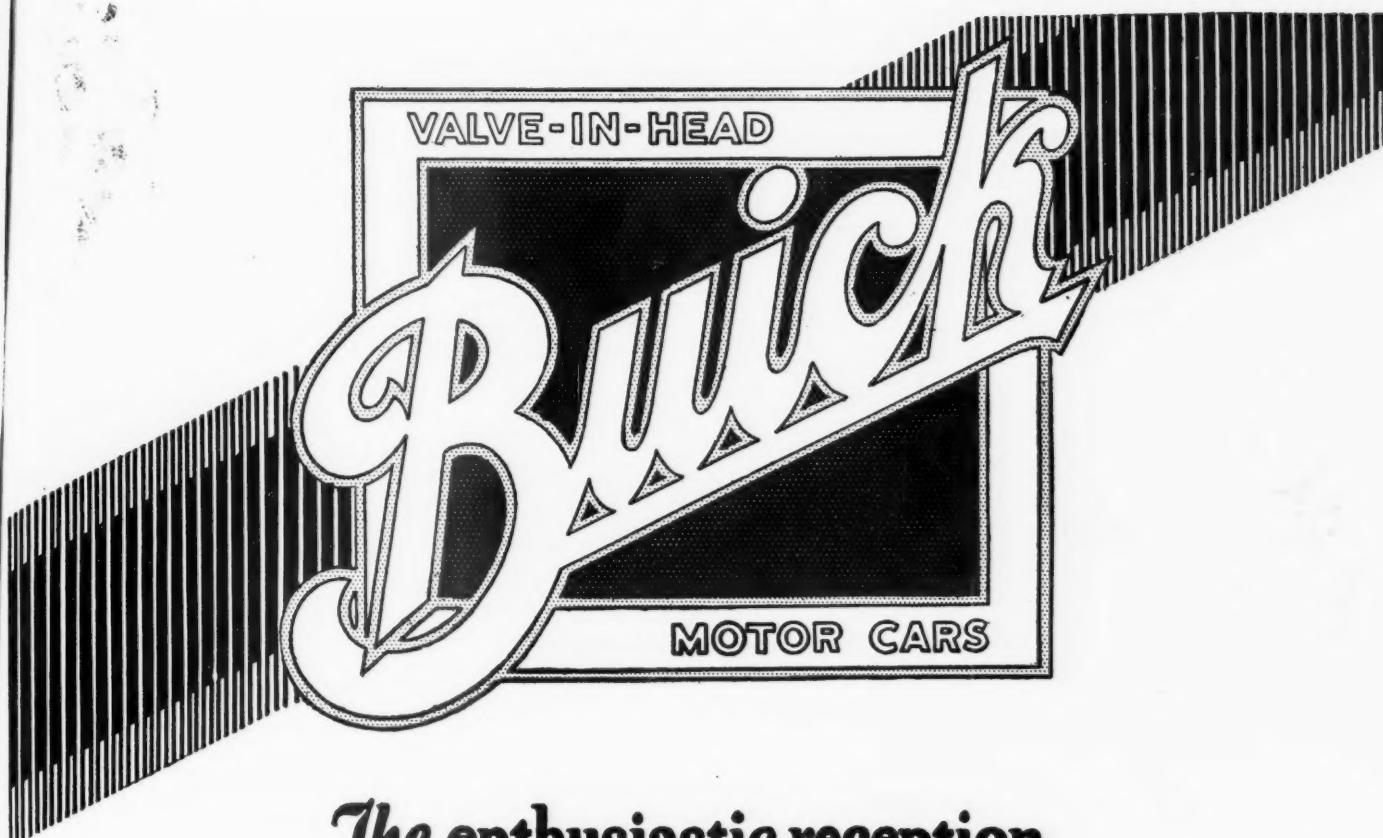
The Noble Heater is noiseless, odorless and easy to install. With only four sizes of valves, you can fit ninety per cent of all makes of cars. No need to tie up your money in a variety of fittings, if you sell Noble Heaters.

Prepare now for the first cold snap --- the first rush for heaters.

Write today for prices and complete sales plan, telling you how we help you sell.

411 N. INDIANA AVE.

The Gladiator Manufacturing Co.
AUBURN, INDIANA.



The enthusiastic reception accorded Buick year after year has become a good-business insurance for Buick dealers that few other business men enjoy. Why not have your name on file?

BUICK MOTOR COMPANY, FLINT, MICHIGAN

Division of General Motors Corporation

Pioneer Builders of Valve-in-Head Motor Cars

Branches in All Principal Cities—Dealers Everywhere

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

An Automobile Mechanic Suggested this Advertisement

NO-LEAK-O PISTON RINGS



Important: In buying piston rings insist on genuine No-Leak-O with the original "oilSEALing" groove. Name "No-Leak-O" on every ring.

*You can't do this
with plain rings.*

"I go so far as to guarantee any car I repair and equip with No-Leak-O Piston Rings, never to leak oil and to always hold compression." (Name upon request).

Read the Reasons

1. Individually cast in one piece.
2. Made of finest close-grained tough grey iron.
3. Turned finish for quick seating.
4. Equalized pressure on cylinder walls.
5. The perfect oil seal means perfect combustion.
6. The original patented non-clogging "oilSEALing" groove insures perfect lubrication, prevents leakage due to worn or warped cylinder walls. Not a mere oil scraper.
7. The perfect fit plus the constant oil seal, made possible by the angled groove, makes it gas and oil tight under all conditions.
8. No-Leak-O service is unexcelled. Prices 35c and up.
9. By reversing the top No-Leak-O ring, with the groove toward the firing chamber, kerosene and unburnt gasoline is kept out of the crank case.
10. Standard replacement ring for ten years.

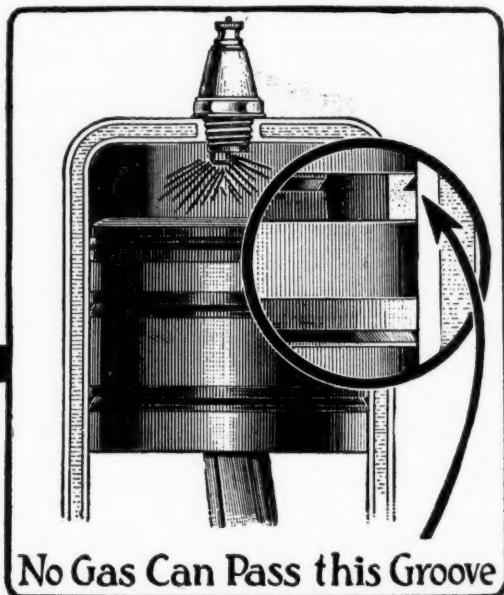
NO-LEAK-O PISTON RING CO.
Dept. 371

MUSKEGON, MICH.

Write for valuable *plain-language* literature and booklet "How to Fit Piston Rings." Absolutely free. Let us tell you how our liberal dealer proposition can increase your profits.

Prices, 35c and up

Copyright 1924, No-Leak-O



No Gas Can Pass this Groove

**"Yes Sir! -All Set!
-Cold weather can't
bother you now"**



**COMFORT FOR EVERY DRIVER—PROFIT FOR
EVERY DEALER!**

Motorists are keen for comfort—that's why it is mighty easy to roll up big sales on Francisco Auto Heaters. When you show the owner of any car how simple a matter it is to have a warm, comfortable, well-ventilated automobile—on the coldest winter day—with no fuel cost—and with a heater that is 100 per cent trouble-proof, the sale is made!

The Francisco is exactly the right kind of heater. It performs all the time—at low speed and high speed—and has the car warm and comfortable after a few blocks' driving.

Clean, fresh, warm air is pouring into the car all the time. That is because the Francisco heats from the manifold—not from the muffler. It ventilates as well as heats. It completely changes the air of the car every two to three minutes. It heats curtained, open cars as well as closed models.

Your customers want the Francisco Auto Heater because it guarantees them complete driving comfort. You want this profitable winter trade. Sell them the Francisco that can be installed in a jiffy. It means quick, clean sales with large profits for you.

*Decide now—before frost comes—to stock Francisco Heaters.
Call on your jobber for full details of our proposition to
dealers*

**THE FRANCISCO AUTO HEATER CO.
DEPT. 14. COLUMBUS, OHIO**

All new models of the leading makes of cars will be included in our price list as fast as they come out.

List Prices as of September 1, 1924

American	\$10.00
Anderson '22	10.00
Auburn 7R and 8R Continental	10.00
Buick Four '22-'24	10.00
Buick Six '20-'24	10.00
Cadillac 53, 55, 57, 59 & 61-63	20.00
Chalmers '22-'24	10.00
Chandler '20-'25	10.00
Chevrolet 4-90	5.00
Cleveland '21-'25	10.00
Columbia 6-Y Motor	10.00
Chrysler '25	10.00
Davis 6-Y Motor	10.00
Dodge, all models	5.00
Dort '22-'24	10.00
Durant Ansted '22-'25	10.00
Durant Four '22-'25	10.00
Earl '23-'24	10.00
Essex '20-'25	10.00
Flint '25	10.00
Ford Sheet Metal all models	2.50
Franklin Models 9 and 10 and 10C	10.00
Gardner '22-'25	10.00
Gray '23-'25	5.00
Haynes	10.00
Hudson '20-'25	10.00
Hupmobile '20-'25	10.00
Jewett '22-'25	10.00
Jordan '21-'25, 6 and 8	10.00
Kissel Kar	10.00
Lexington Ansted '21-'25	10.00
Maxwell '20-'25	5.00
Mitchell '20-'25	10.00
Moon 6-Y Motor	10.00
McFarlan	10.00
Nash Four '22-'24	10.00
Nash Six '20-'25	10.00
Oakland '20-'25	10.00
Olds Eight '20-'24	20.00
Olds Six '24-'25	10.00
Olds Four '21-'24	10.00
Overland Four '20 to '25	5.00
Paige 6-66	10.00
Peerless 6	10.00
Peerless 66	20.00
Pierce-Arrow Model 33 and 80	10.00
Reo '21-'25	10.00
Reo Speed Wagon	10.00
Rickenbacher '22-'24	10.00
Rollin '25	10.00
Star '23-'25	5.00
Stephens Salient Six '22-'25	10.00
Stearns-Knight '24-'25	10.00
Studebaker Light Six '21-'25	10.00
Studebaker Big or Special Six '19-'25	10.00
Stutz '20-'25	10.00
Velie	10.00
Westcott '24-'25	10.00
Willys-Knight '22-'25	10.00
Wills Ste. Claire '22-'25	20.00

FRANCISCO
AUTO HEATER



Do You STOCK Tire Chains Or Do You SELL Them?

You know the wise crack—
“Do you keep sugar?”
“No, we don’t keep it, we sell
it!”

A lot in that. You can stock—or
keep—tire chains if you want to—never
display them or advertise them or talk
them to customers. You’ll keep them,
all right. Or—

You can sell tire chains—and McKay
Tire Chains do half your selling for you.
The distinctive gun metal finish and
McKay red band bag attract attention
in your window or anywhere in your

store. And the remarkably long life of
McKays has made these chains famous
among motorists everywhere.

McKay Tire Chains are hardened
hard for hard driving, and toughened
for rough use. They outlast ordinary
chains by months and miles, yet they
cost no more. And McKays are more
convenient to use. Their special fastener
is always easy to open and close,
yet it cannot come open accidentally.

You can stock tire chains if you like,
but if you want to sell tire chains, get
McKays—the Better Black Chains in
the Red Band Bag.

UNITED STATES CHAIN & FORGING COMPANY, Pittsburgh, Pa.
Makers of McKay Tire Chains, McKay Shurout Chains,
McKay Ready Repair Links, McKay Bumpers.

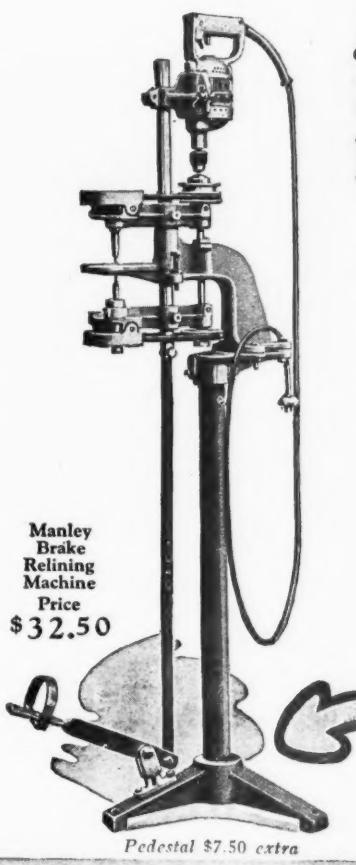
Pacific Coast Sales Representatives
NORMAN COWAN COMPANY, 451 Rialto Bldg., San Francisco, Cal.

MCKAY TIRE CHAINS

MCK

Every form of advertising and
selling help is supplied McKay
Dealers free—ask your jobber or
write us for particulars.

MANLEY BRAKE RELINING EQUIPMENT



Manley
Brake
Relining
Machine
Price
\$32.50

Pedestal \$7.50 extra



Manley
Riveting
Machine
Price
\$36.00

Complete as shown

THE BRAKE RELINING MACHINE

The drill descends from above, and the countersink rises from below. The drill comes down thru the holes in the band or shoe and this locates the countersink automatically.

Like all Manley Equipment it is substantially built thruout.

Your own Portable Electric Drill can be used as the power unit, either quarter-inch size or Half-Inch Special.

Write for new booklet describing this machine in detail.

THE RIVETING MACHINE

The Characteristic Manley Strength is apparent even in a picture. Built for the heaviest sort of service.

Notice the massive body and the reinforcing ribs.

It operates by means of a Double Toggle, twice as powerful as a single toggle.

The riveting action is scientifically correct--a comparatively light pressure at the start of the operation, constantly increasing as the diameter of the rivet is increased by the upsetting operation.

Eight rivet sets and anvils of the finest steel designed by riveting experts are supplied with each machine. Anvils are merely slipped into cup in the anvil screw, which can be adjusted for bands of different thicknesses.

Get a Manley

Your jobber can supply you.

Illustrated booklet describing these machines on request.

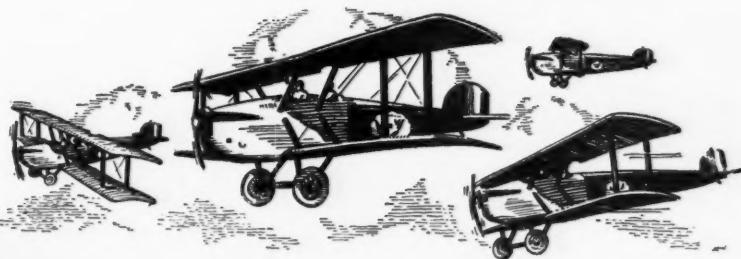
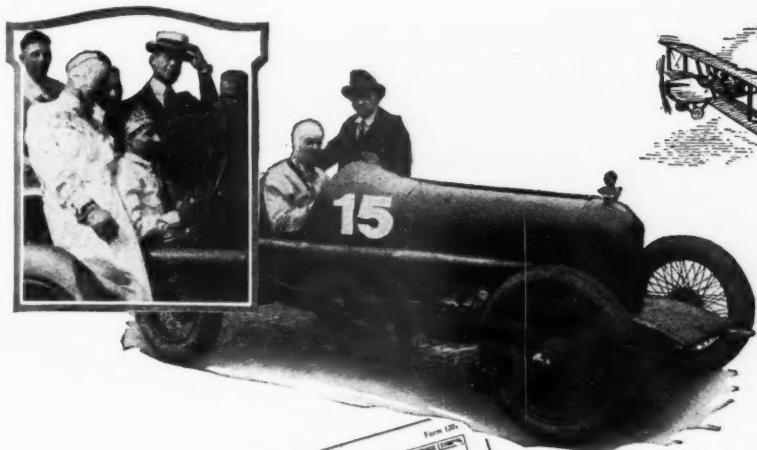
MANLEY MFG. CO., YORK, PA.

Sold All Over The World
*Kelso Brake Linings-
and Clutch Facings-*

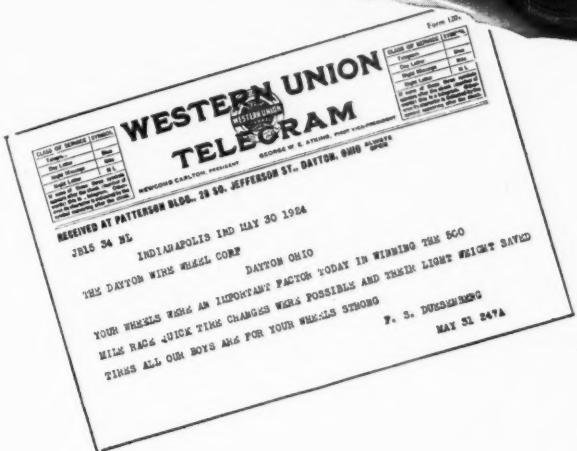
For many years service stations in all parts of the world have tenaciously held to their Kelso franchises for the same reason as do good dealers at home—because performance proves them to be the best Brake Linings and Clutch Facings made.

KELSO MANUFACTURING CO.,
Trenton, N. J.

Kelso
overReady



**for the Man
Who Drives
—or the Man
Who Flies**



It is a significant fact that the winning car at the Indianapolis Speedway last Decoration Day was equipped with Dayton Wire Wheels. Not once during those gruelling miles did L. L. Corum and the late Joe Boyer, drivers of the winning car, have to waste a single worry about the wheels on which they were riding. They KNEW their Dayton Wire Wheels would stay with them to the end of the race.

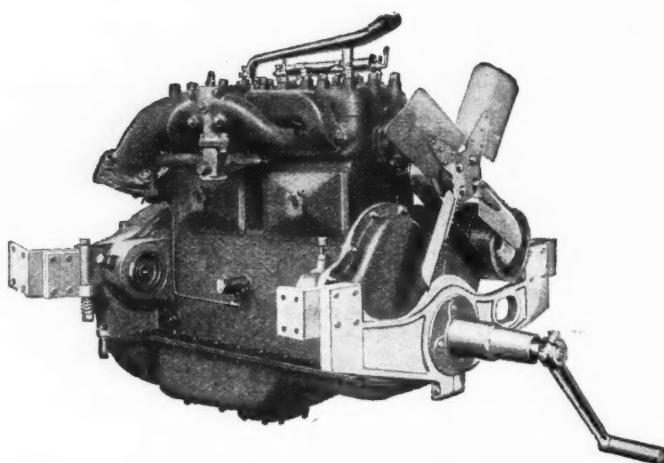
Of equal significance is the fact that the "Round the World" planes, which have just circled the globe, were equipped with Dayton Wire Wheels as a guaranty of safe landings during the cross-country portion of their trip.

There's a wonderful sense of security and satisfaction for the man at the wheel when he can KNOW his running gear is dependable. Dayton Wire Wheels are the greatest safety assurance that drivers of cars and air-craft can have. They are built to absorb the shocks of either speedy road driving or when "taking the ground" from the air. They do not crush.



The Dayton Wire Wheel Co.
Dayton, Ohio

Dayton
Wire **Wheels**
QUICK DETACHABLE



HINKLEY
 HEAVY DUTY AUTOMOTIVE
ENGINES

are now adapted to replacement in virtually all heavy duty trucks. Cost to you is but little more than a major overhaul. And the Hinkley Plan, thus inaugurated, ensures 100% power efficiency for the whole life of your truck.

Model 300 $3\frac{3}{4} \times 5\frac{1}{4}$ Model 500 $4\frac{1}{4} \times 5\frac{1}{2}$
 " 400 $4 \times 5\frac{1}{4}$ " 200 $4\frac{1}{2} \times 5\frac{1}{2}$

Stop Patching That Truck!

In the life of every truck, there comes a time when it is no longer profitable for you to patch and overhaul a ravelled power plant, yet the truck itself is essentially as good as ever. Replacement! That is the answer. The answer for the truck owner to whom it restores a vehicle virtually as good as new. And the answer to the live sales and service organization which furnishes the replacement.

For Heavy-Duty Fords

For Fords we supply HIMICO replacements in two forms—as a Replacement Power Plant—complete with remanufactured and modernized engine, smooth disc clutch and sliding gear transmission—or as a Replacement Transmission only.

The Himico Power Plant replaces the old Ford motor and planetary transmission. Just slip out the old; slip in the Himico.

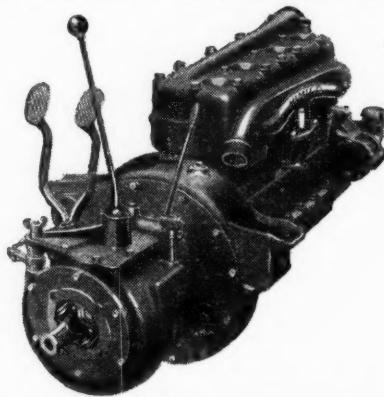
The Himico Transmission replaces the old Ford planetary set, and fits any Ford motor of the starter type. It has three speeds and reverse for cars, four forward speeds for trucks. Unlike other sliding gearsets, the Himico completely does away with the planetary set and clutch. It therefore eliminates complication and the whole transmission-band nuisance.

Result, a Super-Ford

Owners of Himico-equipped Fords all over the country are enthusiastic regarding their super-performance. Such Fords are in actual fact, heavy-duty carriers.

More power, better cooling, better economy in gasoline and oil, improved safety, and infinitely less power waste, with resulting advantages in freedom from repair and longer life—such are characteristic Himico benefits.

Replace those ravelled engines with fresh, modern equipment. And give your Ford Truck a real chance to show what it can do, with sliding gears on the job!



HIMICO
 TRANSMISSIONS
 POWER PLANTS

Complete Power Plant **\$184**
 (And your old block)

Transmission **\$137**
 (Complete with Clutch)

Fourth forward speed with reduction of 42 to 1, and power take-off, are available extras.

HINKLEY MOTORS Inc.

BOX M-839

DETROIT, MICHIGAN

A Two-fold Opportunity



This booklet contains much information of value and interest to every automobile man. Mailed free on request.

PRICE LIST

Net Prices

Ford Generator Armature	\$1.95
Ford Starter Armature..	2.00
Any Make of Two Unit Generator Armature....	4.95
Any Make of Two Unit Starter Armature Rewound	6.75
Motor Generator	
Northeast	\$11.00
Simms Huff	7.00
Delco	12.00
Dyneto	12.00
Detroit	12.00
Any Vacuum Cleaner Armature	3.50

Here are two ways in which dealers and repairmen can MAKE MONEY on defective or burnt-out armatures.

1. Armatures Rewound for Present Repair

When a man comes in with a bad armature—is willing to put up with a slight delay to save money—ship the armature to us. The day we receive it a rewound armature (guaranteed equal to new) is shipped to you. You install it, save your customer at least half the cost of a new armature, KNOW that he'll be satisfied AND make at least as much as you would on the sale of a new armature.

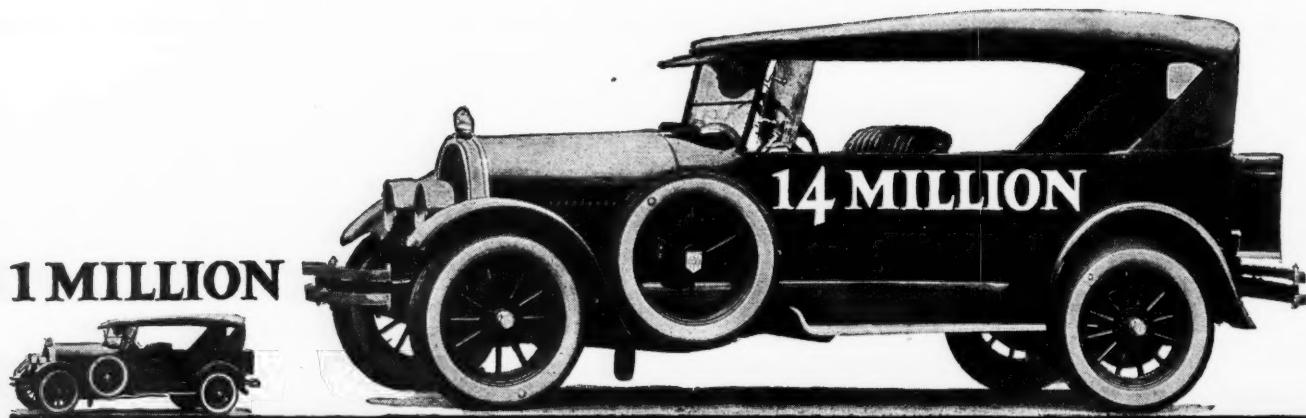
Thousands of repairmen from the Gulf to Canada, from New York to Hollywood, are making money on our service and building **THEIR** reputation on the quality of our work.

2. Cashing in on Old Armature When Customer Purchases New One

There are some motorists who will not wait a day or two for a rewound armature. To them you sell a new one. The old armature is worthless to you in its burnt-out condition, BUT a source of velvet profit if sent to us for rewinding. Stock the rewound armature. You can sell it at a handsome profit to the next motorist with an armature ailment. Then repeat!

Two sources of armature profit open to every dealer and repairman!

H.M. FREDERICKS CO.
Armature Winding Specialists
 Lock Haven Penn.



YOUR MARKET!

There are over 1 million Folberth Automatic Windshield Cleaners now in service. But there is still a big percentage of 14 million motorists who sooner or later will buy Folberths. This is YOUR MARKET.

Every day increasing numbers of automobile owners are realizing the importance of clear vision in wet weather. 39 automobile manufacturers recognized it by adopting the Folberth as standard equipment. Over a hundred thousand automotive merchants recognized the inevitable demand by *selling* Folberths. When are *you* going to start in this rapidly growing business? Your market is waiting for you. *Go after it.*

Ask your jobber to supply you with Folberth "Universal" and "Junior" models, the new "Parts-Kit," and the numerous Sales Helps prepared especially for *you*.

THE FOLBERTH AUTO SPECIALTY CO., CLEVELAND, OHIO

FOLBERTH *Automatic* WINDSHIELD CLEANER



The "Universal"
Model
List Price
\$7.00

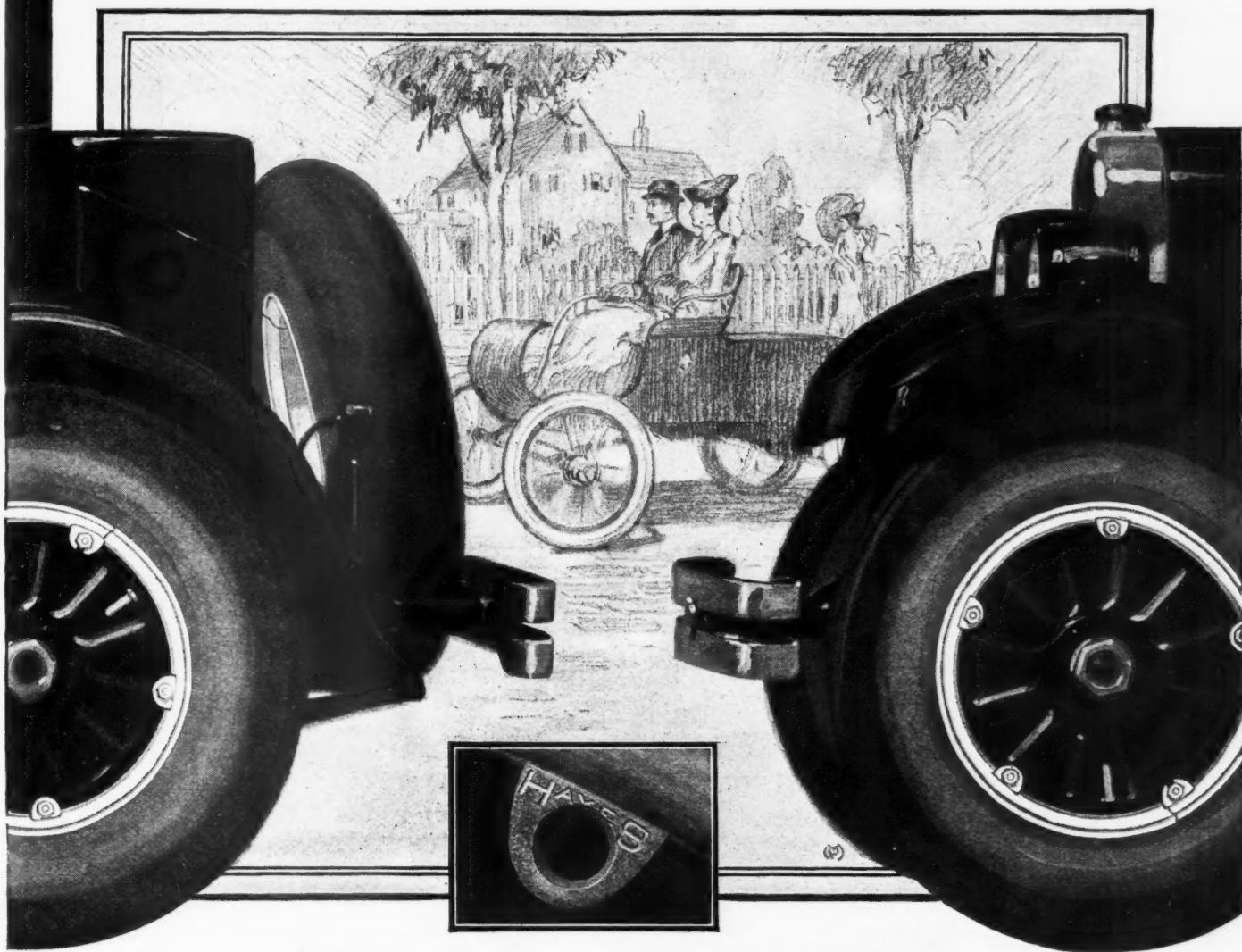


The "Parts-Kit"
List Price
\$11.25



The "Junior"
Model
List Price
\$5.00

Sixteen Years of~



Doing One Thing Well

With the present Hayes organization, the manufacture of wheels—better wheels—has been an all absorbing task for sixteen years.

Even further back—in the days of '98, C. B. Hayes, then Vice-President and General Manager of the Imperial Wheel Company (now a subsidiary of the Hayes Associated Industries) began making wheels for some of the very first cars. Among these were Cadillac, Oldsmobile, Ford, Overland, Hupmobile, Buick and Durant.

Today's Hayes organization is an outgrowth of the early company; inheriting its traditions; expanding, progressing; practically undisturbed in policy and personnel.

Sixteen years of doing one thing well—and doing it continually better—have brought a reward beyond which no institution can aspire. Demand has increased, responsibilities have multiplied, but those years have resulted in ripened confidence on the part of manufacturers and motorists which stands as a bond of trust.

163

HAYES WHEEL COMPANY, Manufacturers, Jackson, Michigan

Factories: Jackson, Albion, Flint, St. Johns, Mich.; Anderson, Ind.; Nashville, Tenn. Canadian Plants: Chatham and Merriton, Ont. Export Office: 30 Water St., New York City

HAYES WHEELS

WITH ATTACHED LUG RIMS ~ STANDARDIZED IN WOOD, WIRE AND DISC

CHEVROLET

Are You Interested in the Future of Your Business?

Chevrolet has a brilliant future.

With the vast resources of General Motors, its tremendous purchasing power, its skilled personnel, and the great General Motors Laboratories, certainly this organization is well equipped to lead automotive progress for years to come.

And all these advantages are constantly available to Chevrolet—and therefore Chevrolet will always be able to build a superior car—a car not only of the highest quality, but a quality car at a lower price.

Thus Chevrolet leadership is and will be maintained. Thus the continued and increasing prosperity of Chevrolet dealers everywhere is assured.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

PRICES OF
DE LUXE MODELS

De Luxe Touring - - \$640
De Luxe Coupe - - 775
De Luxe Sedan - - 940

*Prices f. o. b. Flint, Michigan

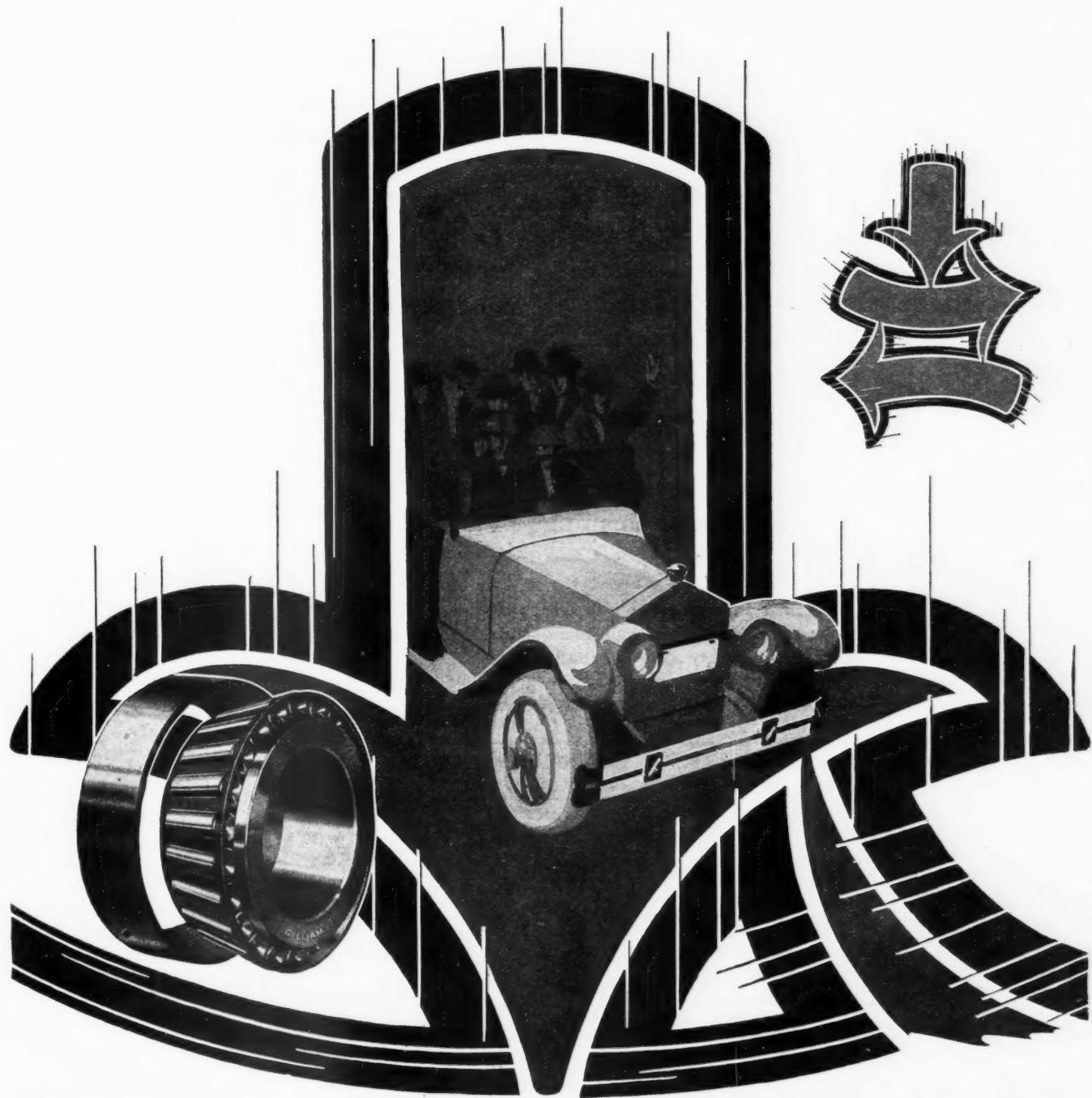
for Economical Transportation



Superior Roadster - -	\$495
Superior Touring - -	510
Superior Utility Coupe	640
Superior 4-Pass. Coupe -	725
Superior Sedan - -	795
Superior Commercial	
Chassis - -	410
Utility Express Chassis	550

Prices f. o. b. Flint, Michigan





Satisfaction—Whenever and Wherever Installed

Dealers and repairmen know that Gilliam Tapered Roller Bearings *will replace as complete units* other makes of tapered roller bearings and certain ball bearing sizes and *will give unlimited satisfaction.*

This replacement is easily made without change in

the surrounding parts of the application.

Favor your customer by installing *Gilliams* in your next replacement job.

Dealers and distributors everywhere.

THE GILLIAM MANUFACTURING CO.

CANTON

OHIO

The arrow symbol signifies the recognized ability of Gilliam Tapered Roller Bearings to carry all combinations of radial and thrust loads from all directions.

They are used as standard equipment in 74 makes of passenger cars and trucks.

Gilliam Bearings are made of high grade alloy steel.

GILLIAM
TAPERED ROLLER
Bearings

Rickenbacker Sixes and Eights are Federal-Mogul Equipped

FROM the first, Rickenbacker Engineers established a policy of quality first and they have lived up to the letter of that policy. The high favor gained and held by Rickenbacker cars has justified that policy.

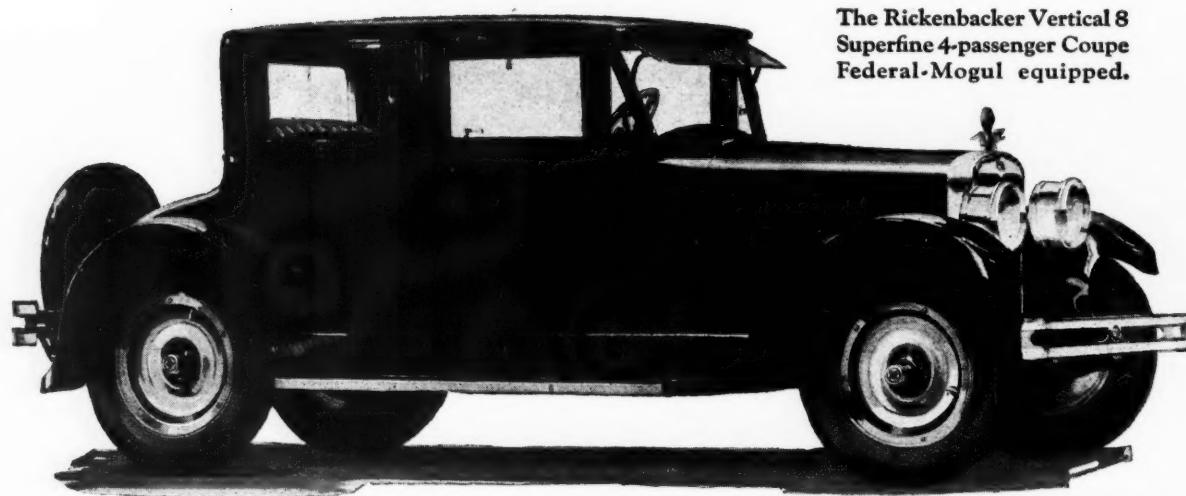
A part of their "Quality First" program has been the use of Federal-Mogul crank shaft bearings, Mogul Alloy Genuine, special connecting rod babbitt, for lining all connecting rods and the extensive use of Federal-Bronze bushings in both Sixes and Eights.

Federal-Mogul Close Limit Interchangeable bearings are held to one quarter of a thousandth of an inch manufacturing tolerance. They reduce assembly costs and result in better performance. These are but a few of the advantages of these super-bearings. Let us tell you about the rest of them.

FEDERAL-MOGUL CORPORATION, DETROIT, MICH.
A consolidation of the Muzzy-Lyon Co. and the Federal Bearing and Bushing Corporation



Federal-Mogul



The Rickenbacker Vertical 8
Superfine 4-passenger Coupe
Federal-Mogul equipped.

A Manufacturer's reputation is safe with Federal-Mogul Products

Ordinarily, when you sell a man a good motor car, you sell him Timken Bearings.



And, having sold him Timken Bearings, what has he bought?



Life insurance—for gears, shafts and axles.



The story is worth telling, particularly *before* the sale. Because the prospect you are talking to knows Timken Bearings by name.

"The Best Equipped
Shop Gets
the Business"



THAT tough "blind" bushing—the Ford Slow Speed Bushing—many a Ford mechanic has cussed hard while trying to knock it out! And no wonder!—the old hammer-and-cold-chisel way is as ancient as the Egyptians. It's so slow, clumsy, awkward.

Certainly no modern shop would use any other method than the new Stevens Extractor—a SPECIALIZED "SPEED-UP" TOOL. Simply lay the Ford part on the steel block—insert Extractor in bushing—then a few smart raps—and the bushing's out, quick and clean.

The Extractor can't slip because its *automatic expanding action* forces the teeth into the inner walls of the bushing.

One of the seven tools which make the Stevens Transmission Bushing Outfit so complete and efficient. The outfit removes and replaces every bushing in the group. Each tool complete in itself—no time lost making up combinations or hunting mislaid parts.

"Thru your jobber—his service is economy"

Write for Clinic Catalog 20

Stevens & Company
375 Broadway, New York

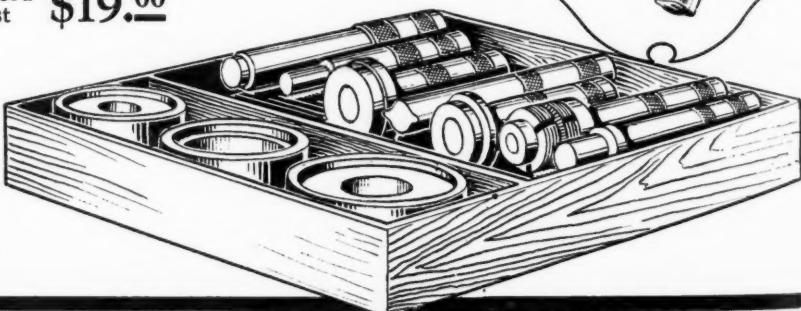
Complete Set for Ford
in stout wood chest \$19.00

Consisting of

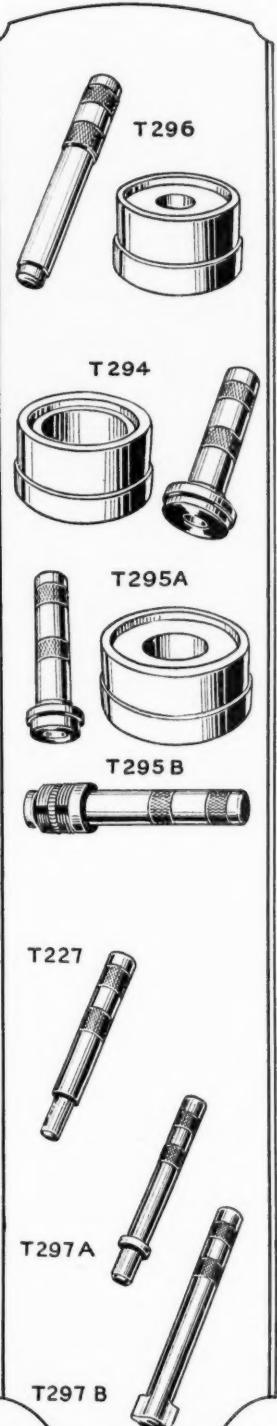
T-296—Driver and Block for Gear Sleeve Bushing No. 3320C. T-294—Same for Reverse Gear Bushing No. 3304. T-295A—Same for Slow Speed Bushing No. 3309. T-295B—Extractor for No. 3309. T-297A—Driver for Driving Plate Bushing No. 3327B. T-297B—Puller for No. 3327B. T-227—Driver for Triple Gear Bushing.

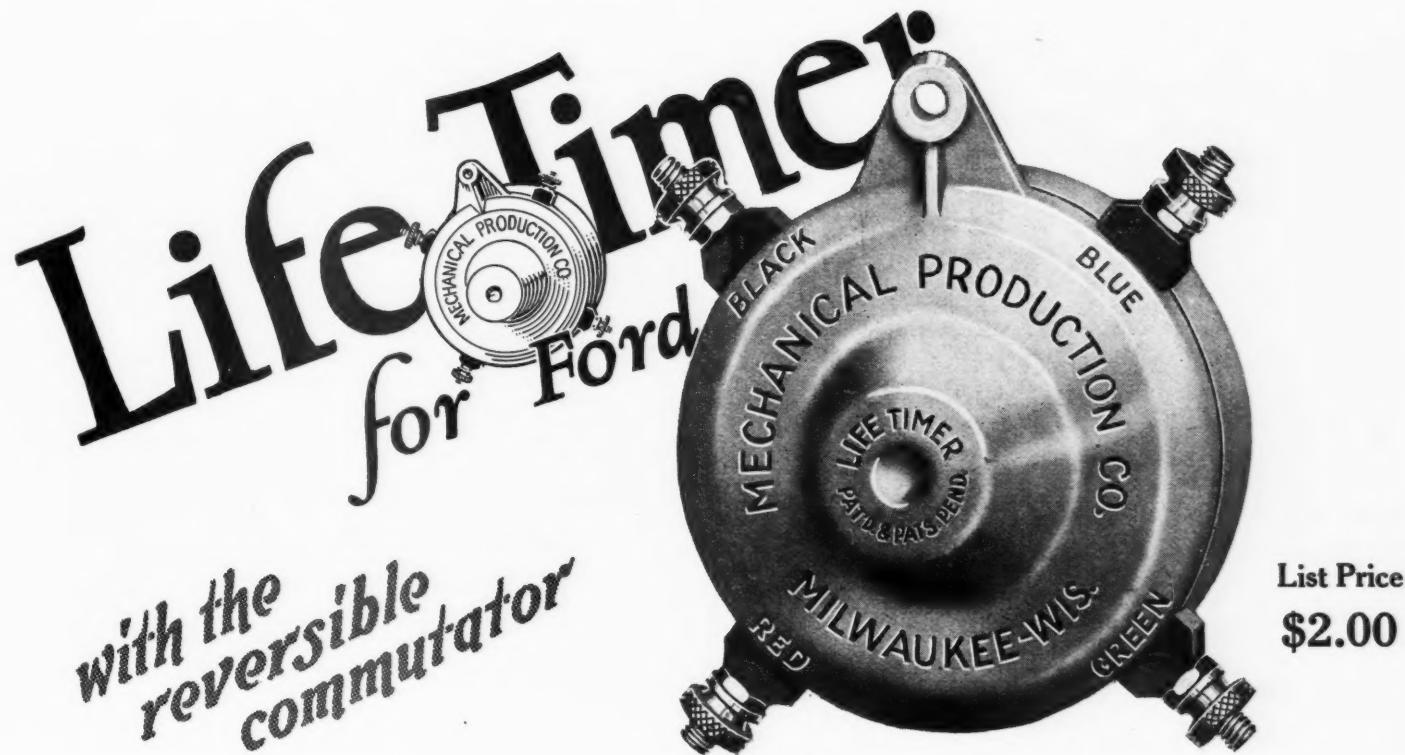


Stevens
Transmission
Bushing Tools



Stevens SPEED UP Tools



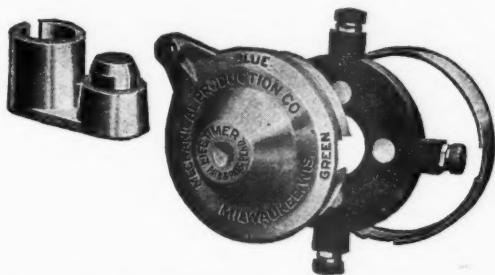


Good Merchandise—Merchandised Right

THOUSANDS upon thousands of Life Timers have been put at the service of Ford owners since the first Life Timer appeared with its unconditional guarantee.

Life Timer is built like a high priced distributor with only one moving part, the Rotor Arm, attached to the cam shaft. Requires no oiling or attention. Perfect contact is wiped each time.

DEALERS can unqualifiedly recommend the Life Timer to their customers in the assurance that it is a substantial, properly designed unit for the Ford Car whose service is being daily proved to an army of satisfied Ford drivers.

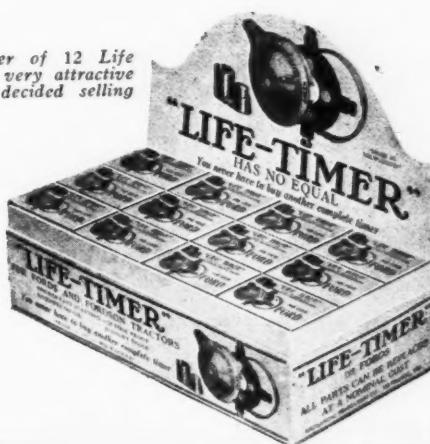


oil proof
short proof
water proof
trouble proof

Reversible commutator, made of 5/16 in. Bakelite with brass plugs firmly anchored in, is a spare timer in every sense as each side will give thousands of miles of service.

No part of the Life Timer can warp, swell, shrink or distort in any way. It is unconditionally guaranteed by the makers.

Counter container of 12 Life Timers makes a very attractive display with a decided selling value.



Mechanical Production Co.,

Milwaukee, Wis.



Drilling out cylinder head bolt close to cowl—
an awkward job made easy by "Yankee"
Double Ratchet.

Tight against cowl yet he drills easily

He doesn't need space to revolve crank of "Yankee" Ratchet Breast Drill.

When set on DOUBLE Ratchet any slight movement of crank back and forth causes drill to cut continuously.

By doing the otherwise impossible jobs, a "Yankee" Ratchet Breast Drill saves the time and expense of taking down construction.

"Yankee" Ratchet Breast Drill No. 1555

Five ratchet adjustments changed by touch on Ratchet shifter. Two speeds, changed without removing drill from work. 3-jaw chuck holds round shank drills up to $\frac{1}{2}$ inch.

No. 555. 2-jaw chuck holds both rounds and squares up to $\frac{1}{2}$ inch.

Some Other "YANKEE" TOOLS

Ratchet Hand Drills	Automatic Push Drills
Ratchet Chain Drills	Ratchet Screw-drivers
Ratchet Bench Drills	Ratchet Tap Wrenches

Dealers everywhere sell "Yankee" Tools



FREE—to you

Interesting book illustrating and describing all "Yankee" Tools. If you like unusual tools, you'll want a copy.

NORTH BROS. MFG. CO., Philadelphia, U. S. A.

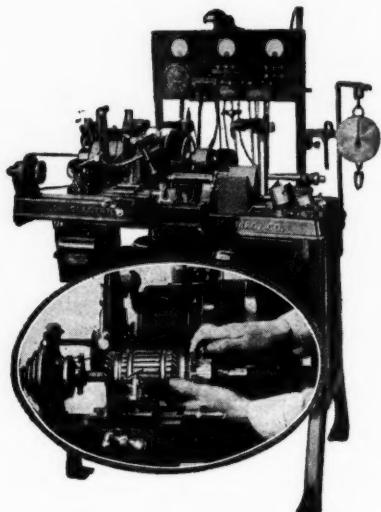
"YANKEE" TOOLS

Make Better Mechanics

ALLEN
TOOLS - EQUIPMENT

Universal Test Stand

Complete with
Lathe and
Mica
Undercutter



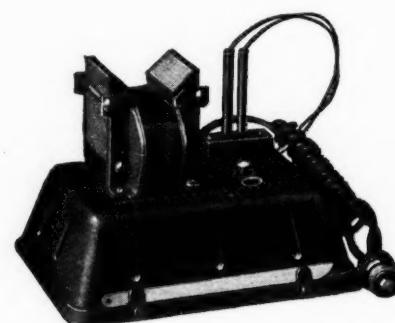
Guarantees Accuracy and Profits

Up-to-date service stations are specifying Allen Universal Test Stand. They know accurate and profitable work depends on their equipment.

You can handle electrical work on any car with the Allen Test Stand—complete in every detail with plenty of reserve power.

NEW Allen Growler

Many time-saving and cost-cutting features are built into this New Allen Growler. Like all Allen products absolute accuracy is guaranteed.



Jobbers—Get our new Equipment Literature—
instructive details for service men.

ALLEN ELECTRIC MFG. CO.

2051 Lafayette Boulevard West

DETROIT,

MICHIGAN

The Second Article of the "Profits" Series Appears in this Issue

PROFITS vs. VOLUME

1. Profit the Motive of All Business.
2. A New Business But Old Principles.
3. Where Profits Come From.
4. How to Determine Mark-Up for Profit.
5. Meeting Competition That Cuts the Percentage.

ECONOMICS OF PURCHASING

1. Profit Starts With Buying.
2. A Well Selected Stock.
3. Buying From Reliable Sources.
4. Take Discounts to Reap Profits.
5. Know the Merchandise You Buy and Sell.

UTILIZATION OF PLANT CAPACITY

1. Profitable Use of Plant Capacity.
2. Departments Essential to Transportation Store.
3. How Much Is Enough Space.
4. Displaying and Storing Stocks.
5. To Build or Remodel.

COST OF SELLING

1. Gross Margin Is Not Net Profit.
2. The Cost of Selling.
3. Overhead Must Be Met.
4. Salaries and Wages.
5. Maintenance Service As a Profitable Commodity.

TURNOVER OF CAPITAL

1. Relation of Profits to Capital.
2. How Money Works.
3. Your Banker Is Your Friend.
4. Turnover Creates the Margin.
5. In Return for Profit.

The subject of this article is "A New Business but Old Principles." Just as there is no royal road to learning, so there is no gilded road to business success. This article emphasizes the principles of merchandising necessary to obtain sound business and worth-while profits. If you have not read this article, turn to it now. It will be worth while.

In the panel to the left is a list of the subjects to be treated in the complete series of articles appearing in this publication. It is part of a campaign to improve conditions, appearing simultaneously in

AUTOMOTIVE INDUSTRIES
MOTOR AGE **MOTOR WORLD**
AUTOMOBILE TRADE JOURNAL

The major theme of all the series will be the same, but the articles themselves, the writers, the treatment and the appeal of each will be different.

Look for these articles. Make it a point to read them carefully. They are full of helpful suggestions on meeting the greatest question confronting the industry today.

*Don't Miss This Important
Article of the Series*



Through the Ozarks With Autowline!

The Tale of a 55 Mile Tow-Home

You motorists who for some reason or other have been putting off the buying of a Basline Autowline—read of the experience of Mr. Guy Oliver, of the Oliver Electric Co., St. Louis, who writes us as follows:

"Last month I was driving my touring car out around St. Clair, Mo., when I had a serious breakdown.

"Luckily, a friend happened by in a 48-Pierce-Arrow and he offered to tow me in to St. Louis, a distance of 55 miles, with an Autowline.

"If there are any rougher roads anywhere than in the foothills of the Ozarks, I'd like to see them. Frankly, I was very skeptical about your Autowline standing the gaff of that long, hard journey home.

"But home we finally did reach, thanks to Autowline, and the whole affair made such an impression on me that I am writing you about it. If there is anything a motorist really ought to carry with him all the time, it is Autowline. It's like a life preserver—not thought about until needed, and then you simply can't get along without it."

Money for Jobbers and Dealers:

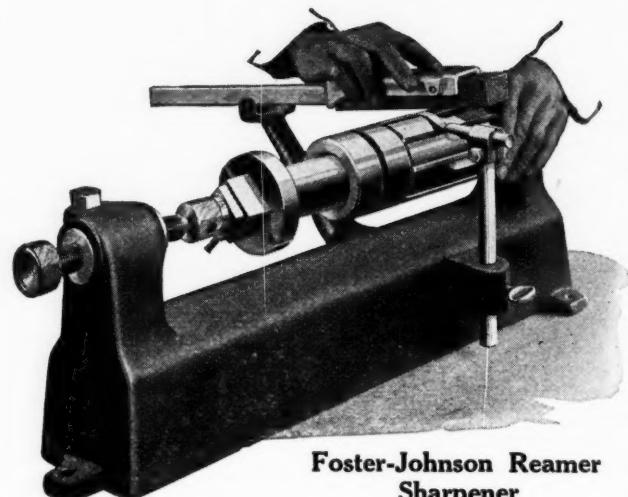
Basline Autowline pays you a good profit, it sells well, and is the ONLY Nationally-Advertised towline on the market. Push it this season.

Broderick & Bascom Rope Company
ST. LOUIS—NEW YORK

GR-195

**BASLINE
AUTOWLINE**

Re-Conditioning Tools Every Shop Should Use



Foster-Johnson Reamer
Sharpener

KYLIN General Purpose Reamers are designed to give the garage owner an extra means of handling motor re-conditioning work. They are adjustable, and though different in construction from the regular F-J Piston Reamers, operate with equal thoroughness. Each and every blade of the Kylin Reamer expands to the same identical diameter, producing a uniform depth of cut which is essential to the production of a quality job.

THE speedy and dependable adjustment of Kylin reamers enables you to complete a hurry-up job in the time usually required to adjust an ordinary reamer.

FOSTER-JOHNSON Reamer Sharpeners provide you with facilities for keeping your reamers in first class condition. No shop is complete without these items of Foster-Johnson equipment.

Write for our Station Manual and Catalog of Re-conditioning Tools. Let us show you opportunities open to the shop that is Foster-Johnson equipped.

FOSTER-JOHNSON REAMER CO.
1312 Beardsley Ave., Elkhart, Ind.

ARMATURE DATA BOOK

A Complete List Showing Types of Armatures used on all Makes of Motor Cars and Prices for Rewinding. Suggestions for Obtaining the Best Results from Our Service.

U. S. ARMATURE SERVICE OWNED AND CONTROLLED BY U. S. AUTO SUPPLY CO. 3845 S. Wabash Avenue Chicago, Ill., U. S. A.

Send for this FREE Book

A VALUABLE HAND BOOK
for Every Dealer, Garage and Service Station
We have compiled, between two covers, all the facts and data regarding types of armatures used on all cars. It is right up to the minute, and covers the past 12 years' models. It is knowledge which we use in our extensive armature Re-winding Service, in a form valuable to the entire trade. It will show you how to make more money on armatures as well as give the utmost in service. It is a text book that will be prized by you.

Write for it quickly.

U. S. Auto Supply Co.
Armature Service
3845 S. WABASH AVE.
CHICAGO

**This Positive
Guarantee
on Every
U. S. Job→**

PRICES

Any Ford
Armature Rewound

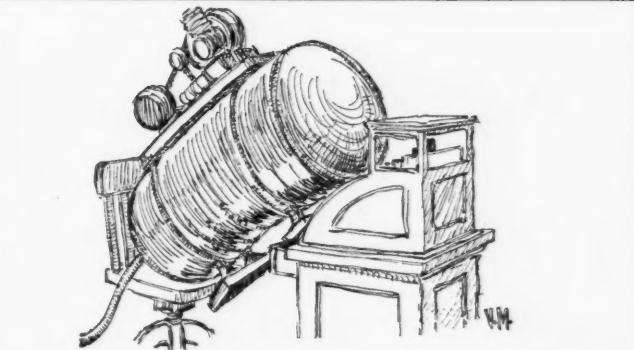
\$2

ANY TWO-UNIT
Generator armature
rewound

\$5



**"Where Armature Service
Is Made a Specialty"**



**An Air Compressor that
feeds on profits is an
expensive pet!**

The big thing about a Brunner Compressor is its economy of upkeep.

Because its inside workings are in perfect tune, sound and healthy—a Brunner gets along on a very modest diet of electrical current and almost never runs up doctor bills.

This is only the natural result of good design, good materials and good workmanship in building. A Brunner costs less to maintain than an ordinary compressor because it's made better. For the same reason it starts more quickly, works faster, runs more smoothly and silently and lasts longer.

And yet, even at that, a Brunner costs but little more than Compressors that are built to a price.

There is a Brunner for every need.

Write for the Brunner catalogue

BRUNNER MFG. CO.
UTICA, N. Y.

*Oldest and Largest Manufacturers of
Garage Air Compressors in the World*

BRANCHES:
Cincinnati Kansas City San Francisco
Export Office: Utica



**1924 Model 939,
2 Stage Compressor**

With 20 exclusive features,
a few of which are:

Extra Large intercooler.

Ground contact surfaces.

Improved Belt Tightener.

Removable Cylinders.

Forked-type Connecting Rods

—Minimizing vibration.

Every part built with special

tools and gauges, insuring

absolute interchangeability.

Seamless Steel Tank—Insuring

absolute safety.

Solderless Compression

Couplings.

Brunner Patented No. 73

Safety Valve — Absolutely

Air Tight.



ONLY
APEX Innerings
Hold

Live Tension

All the spring in an APEX Innering cannot be destroyed, no matter how hard you try. Bend it; squeeze it; burn it up inside the motor—and you'll never take out all the live tension. Yet this special steel can be adjusted to any degree or tension required. This makes Genuine Apex Innerings the only safe way to stop oil pumping without reborring.

Buy no imitations—always insist on Genuine APEX Innerings.

At little cost to your customers you can stop oil pumping and piston slap—yet your profit proportionately is bigger when you consider how quickly "APEX" can be installed, and how many jobs you can handle.

Most good jobbers stock Genuine APEX Innerings. If yours does not, accept no substitute. Send your order direct. We'll ship at the same discount jobbers allow.

20c each

Retail up to $\frac{1}{2}$ inches wide or 5 inches diameter; larger, 35c each.

**THOMSON
MFG. CO.**

Dept. C

Peoria, Ill.



"If it isn't an APEX—It isn't an INNERING."



SELL THIS INEXPENSIVE BATTERY INSURANCE

Service stations and car owners absolutely need this battery necessity. NON-KOROD prevents corrosion and sulphation thereby insuring battery life and service. Will not insulate terminal from post. Never becomes brittle nor loses its efficiency because of age.

Non-Korod

GUARDS
BATTERY LIFE

Jobbers and Dealers will find it a big selling staple. Battery men and car owners must have it.

Write for literature and prices.

National Cable Compound Co., Inc.
Mitchell, Indiana



Competitors Are Flirting

With your customers. Watch your step! Don't run the risk of losing good customers for the sake of the few cents' difference between poor-quality-metal-solder-dipped clamp type terminals and bronze-alloy-OVERcoated-with-99%-PURE-LEAD "OHIO"

VISE Type **Battery**
Terminals



Type No. 11



Type No. 13



Type No. 12

The easiest working terminals in the world.

TRY ONE AT OUR EXPENSE

Sample of any one of these VISE Type Terminals will be mailed to you postage prepaid. A postcard request will do.

Ask your Jobber for "OHIO" Terminals and Battery Equipment.



THE OHIO PARTS CO.
3305 Colerain Ave., Cincinnati, O.

If you want to sell or rent your business you can

- (1) Put signs in your windows—to attract the attention of those who pass by.
- (2) Put an ad in your daily paper—to be seen by some of your local prospects.
- (3) Put an ad in your business paper to be read by others in your line of business, some of whom may be looking for just such an opportunity as you have to offer.

There are thousands of men in this industry who are ambitious to be their own boss—they have saved their money to buy a business of their own and might pay you a higher price than you have yet been offered.

The cost is too small to cause hesitation. Undisplayed ads are only 6c a word. The quicker you send your copy the sooner the dividends on your investment.

The Broadcaster
A DEPARTMENT THAT
WILL FIND WHAT YOU WANT

The Broadcaster Department Appears in This Issue on Page 103.

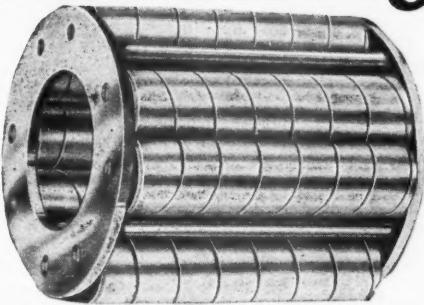
Now—You Can Get Replacement Bearings Quickly!

FOR FORD PARTS, NUMBERS
 2508 2587
 1019 2593
 1046 2596

GET them from your jobber! He can give you almost instant service on Little Giant Roller Bearings. We deliver to jobbers the SAME DAY order is received.

ROLLER BEARING CO. OF AMERICA
 Frelinghuysen Ave. & Hunter St., Newark, N. J.
 We make bearings for everything that rolls

LITTLE GIANT Roller Bearings



MORRISON AUTOMATIC DOUBLE RANGE WORM DRIVEN JACKS

SPEED SERVICE SATISFACTION

A 100% BALLOON TIRE JACK. Most efficient for all MOTOR VEHICLES, from the lightest passenger car to the heaviest truck. Made in nine sizes.

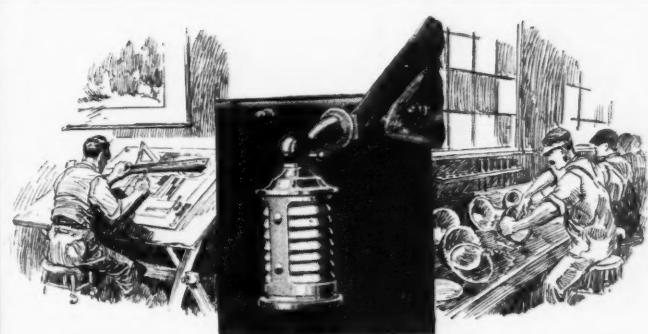
The MORRISON LINE OF JACKS is low enough and high enough to meet every requirement, and is in great demand among the motoring public.

FOLLOW THE LEAD of the best automobile Engineers of America when you buy a jack.

"SURE HOLD" STEEL FLEXIBLE CAP
 Prevents Slipping

Standard equipment with more than fifty automobile manufacturers. We invite jobbers and dealers to write us for a good selling proposition.

Easily lifted under or away from car by special socket. A feature your buyers will approve.



From "Light" to "Lamp"

Victor engineers first make a study of light—proper illumination for the car and its path. They determine the need for the light, the volume and control, then the design.

From this the Victor craftsmen carry out the production of the lamp with expert attention to the quality of material and workmanship.



No. 76 "Paul Revere"



No. 47 "Firefly"



No. 33 "Tentacle"



No. 25 "Sentinel" with
 No. 7 "Jiffy" Bracket



No. 6 "Minute"

"Paul Revere" Lantern. Primarily a parking lamp with a two candle power bulb. Can be furnished with a double filament bulb and stop lamp switch for use as a combination parking, stop and courtesy lamp. No. 76 fastens on the fender. No. 75 is mounted on open cars by screwing it to the top-bow stud in place of the nut. Wiring concealed under the upholstery.

"Firefly." A miniature, current-saving parking lamp. A one-piece casting, fitted with imported cut jewel lenses and a protecting nut under the fender for the wire. Made and finished like a piece of jewelry. Supplied with separate switch for the dash.

"Tentacle." A new stop lamp designed for installation around any standard tail lamp by means of a circular band clamp. Finished in black enamel with nickel plated door. For use with Victor No. 2 switch or "Minute" switch on Ford.

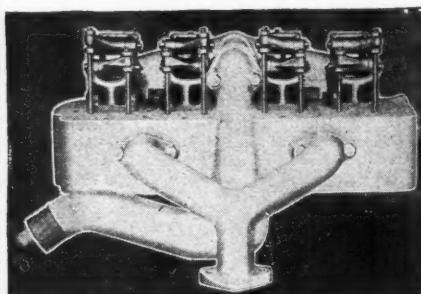
"Jiffy." A bracket for quickly mounting stop or warning lamps on Ford fenders without drilling holes. Can be attached in a jiffy by tightening one bolt. Finished in black enamel.

"Minute." A new stop lamp switch for Ford cars. Installed in a minute. Held securely by two of the Ford transmission cover screws and is operated by the brake pedal. No wires to stretch, sag or get out of order.

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 VICTOR LIGHTING

The Cincinnati Victor
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ROOF 16 OVERHEAD VALVE EQUIPMENT
For Ford and Dodge Motors
ROOF 8 VALVE HEAD FOR FORD MOTOR



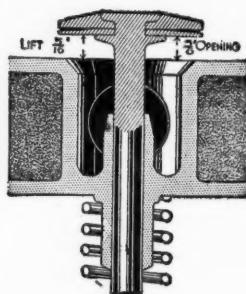
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THE LAUREL MOTORS CORPORATION, ANDERSON, INDIANA

**Stupendous Power—
Lightning Speed**
Ford racing cars with Roof Equipment are rivals on mile and one half mile tracks of the highest priced racing cars. Doubles the pulling power of the Ford or Dodge pleasure car or truck. Hill climbing and general road work beyond wildest dreams of the owner. Complete—ready for installation—no machine work necessary.

We are headquarters for all speed equipment. No matter what you want, write us. Racing quality—lowest prices. A postal card brings you complete list of our specialties.

BOYLE VALVES

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Improve with use and make a good motor better. Installed in less time than re-grinding ordinary valves. They save their cost in one re-grinding period. Made for all poppet valve motors.

Liberal discount means a big profit to you.
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Men Wanted Everywhere!

All about you—in every town and city—are cars that need repainting. The "paint it yourself" field is tremendous. MORGAN'S RUBBER AUTO ENAMEL is well established in the three Pacific Coast States and is now establishing Distributor connections thruout the country.

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Morgan's
CELEBRATED 3 IN 1 RUBBER AUTO ENAMEL

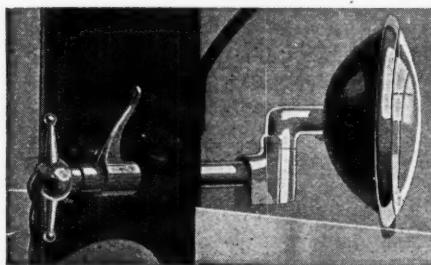
Dries over night. Leaves a lasting lustre. Does not check or crack. Sells \$2.50 quart BLACK and \$2.75 quart for choice of 8 colors.

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Sells Easily at \$10.00**

This spotlight is so substantial and so beautifully finished that car owners can hardly believe the price is so low.



It is easily installed by drilling a $\frac{3}{8}$ hole in the corner post—no broken wind-shields. Can be turned in any direction at the will of the driver.

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Geared condensers requiring many holes in the panel and a careful lineup of pinion shafts are a waste of time and a bother. This marvelous instrument provides the fine adjustment for tuning in distant stations. The ratio is 10 to 1. It can be quickly applied to any shaft.

This Apex Vernier Dial is a product of the long and favorably known Apex Electric Manufacturing Company, who are producing it under the same exacting principles which have marked the great success of their Automotive products. Every accessory dealer should have a radio department. And no radio department is complete without the Apex Vernier Dial and other Apex Radio Products.

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Each successive blade cuts AT A DIFFERENT ANGLE from the one before it.

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TWICE the expansion of others. All sizes. Money-back guarantee.

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Ball Bearings Do Not Wear

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\$28.00

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As staunchly built as it is smartly styled. All steel, welded, one-piece rattle-proof body, designed on lines of utmost distinction.

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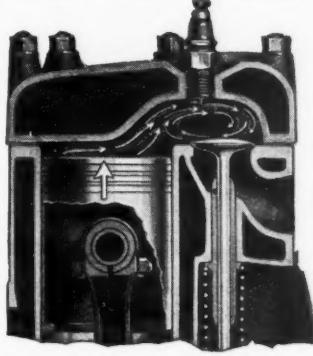
The problem of chassis sales, used cars and delivery jobs, finds its solution in smart Mercury Sportabout Bodies. Instead of making a sacrifice you make a sale. And every Mercury job put on the streets of your city usually leads to other sales!

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Let us show you how Mercury answers the problem of slow-movers. Write for photos and full details of liberal dealer offer.

The Ricardo Head



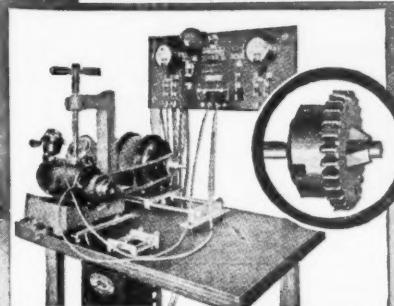
Mass response followed the announcement of four-wheel brakes and balloon tires. Now, the car-buying public looks for improved engine design—increased performance at lower cost and the new standards of ease and certainty the Ricardo Head provides. Thus, immeasurable sales value is added to the product that's "Ricardo Head-equipped."

WAUKESHA
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ENGINE BUILDERS
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Page 103

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INCREASE YOUR PROFITS!

Starting, lighting and ignition pays bigger profits than any other branch of automotive service.

The Exelsior Test Bench
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Payable \$50 per month
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STORMIZING machines are truly money makers. They enable you to make biggest profits on every overhauled job. They handle all your cylinder renewing, accurately and efficiently, enabling you to turn out the high quality work that wins your customers' lasting approval. The automatic time and labor saving features make big profits possible by lowering operation costs.

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Learn the interesting details from our descriptive data.

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"Established Since 1904"

U.S. Air Compressors

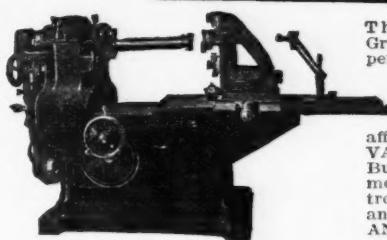
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The Aristocrats of Motordom
7 Models—Open and Closed Distributors in principal cities. Open territory now being closed.

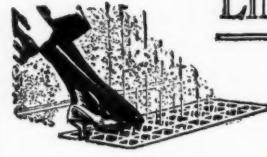
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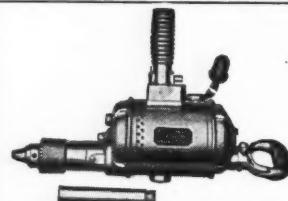
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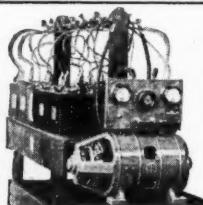


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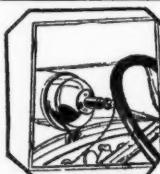
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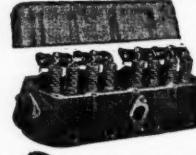
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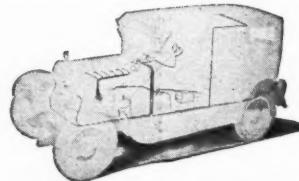
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fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

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Everything you need, in one small box, compact, accessible, and a real mechanic's outfit. Sockets will not break. Fully guaranteed. Ask your dealer or write us.

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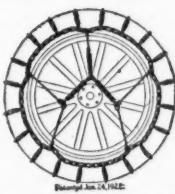


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IMPROVED ANTI-SKID CHAIN TIGHTENER
Helps Chain to Creep While Taking
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An exclusive sales feature!
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Page 103

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Special Process Tempered
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Guaranteed not to cake or harden or to contain any Moisture, Mineral or Fatty Acids. Attractive proposition for Jobbers and Dealers.

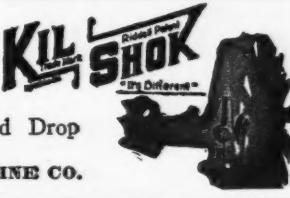
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Pulls Car Over Rough Spots

No friction—no springs—
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Cyclo "Dynamic" Hot-Spot for Fords

This "Modified Vapor" manifold gives a gas with lots of "kick" in it for hill-climbing—exceptionally smooth running and economical at all seasons. Vacuum control varies the heating inversely with the load.

The best permanent proposition for dealers.

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ALMOND "STRAIGHT LINE" DRILL CHUCKS

When buying Portable Electric Drills be sure to look for the distinctive ALMOND CHUCK, which may be easily identified by the "STRAIGHT LINE" milling on the chuck body.

Write for complete information regarding the new ALMOND "STRAIGHT LINE" CHUCKS.

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USE THE AMMCO

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Regrinds and refinishes cylinder bores. It is self-adjusting, self-aligning and self-centering. Write for Bulletin.

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RUBBER COVERED—IMPOSSIBLE TO INJURE CAR. Used in connection with our Little Giant Water Savers, or can be applied to any $\frac{1}{2}$ in. or $\frac{3}{4}$ in. valve.

Rubber Nozzle—for full water flow.

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PRICE—Set of four Nozzles, \$2.00 less dealers discount.

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Yes!
Outperforms any
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Varley coils eliminate nearly all chronic ignition trouble. Save gas. Add power. Keep plugs clean. Stop misfiring. Save repairs. \$2.50 each. Write for full particulars.

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The Original

SILENT TIMING GEARS

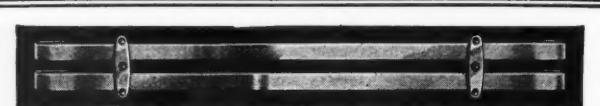
MADE OF

CELORON

2333 Michigan Ave., Chicago

Over a
Million
In Use

Dalton & Balch, Inc.



Spring-steel, Oil-tempered Bumpers in Six Complete Styles. Guaranteed Satisfactory Attaching Arms for all Leading Makes of Cars.

We invite comparison in appearance, quality and price.
THE BELLEVUE MANUFACTURING CO., Bellevue, Ohio

“CONNEAUT” Plastic Metallic Packing

Patented

Stops the leaks in automobile water pumps. Mold it with your fingers. Makes a smooth metal bearing—adjustable and practically frictionless. At your Jobbers—Get it today. It does the trick. Put up in 1 lb. cans. If your Jobber doesn't carry it, write us direct. Price \$1.65 per pound, f. o. b. Conneaut, Ohio.

The Conneaut Packing Company

Conneaut, Ohio

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American Hammered Piston Rings

American Hammered Piston Ring Company
Baltimore, Maryland

Kawneer SOLID COPPER STORE FRONTS

Write for Special Book Garage Fronts

THE KAWNEER CO., 1219 Front St., Niles, Mich.

THE QUINCY SILENT AIR-MASTER

The Most Air Per Dollar Cost

WALL PUMP & COMPRESSOR CO.

Quincy, Ill., U. S. A.

“REQUIRES
ONLY
HEAT”



SAMPLE
FREE

“In Stock— Not Over a Day Away”

Write Milwaukee Die Casting Co., Milwaukee, Wis., for name of one of our 500 distributors nearest you.

MILWAUKEE BEARINGS

The Broadcaster

A Department that will Find What You Want

PARTS

HOUSE OF A MILLION
AUTO PARTS

THE LARGEST STOCK OF NEW AND USED CAR AND TRUCK PARTS IN THE WORLD. WE HAVE EVERYTHING.

New and Used Motors, Gears, Axles, Bearings, Springs, Magneto's, Generators, Clutches, Starters, Universal Joints, Radiators, Cushions, Wheels (Wood, Disk, Wire,) Carburetors, Piston Rings and Pins, etc.

Always mention model and serial number in order.

Write us. All inquiries answered promptly

DOUGLAS AUTO PARTS CO., INC.
2003-5-7-9 South State St. Chicago, Ill.

AUTO PARTS

SAVES 50% TO 75% ON ALL CARS

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

INDIANA AUTO PARTS CO.
316-18 NO. ILLINOIS ST. INDIANAPOLIS, IND.
LARGEST CAR WRECKERS IN INDIANA

AUTO Save 50—90% PARTS
2000 Models

NEW AND USED GEARS, AXLES, BEARINGS, SPRINGS, MAGNETOS, GENERATORS, ETC. Jobbers in BANKRUPT AUTO SUPPLIES.

BRIGHTMAN AUTO EXCHANGE
321 Windsor Ave. HARTFORD, CONN.

DOWMETAL PISTONS

Lighter, stronger, and longer wearing than aluminum or iron. Can be fitted with bronze bushings in the wrist pin holes same as in iron pistons. Dowmetal has no permanent growth. The expansion is little more than iron.

SEND FOR PARTICULARS
LAMMERT & MANN CO.
Cylinder and Crankshaft Grinding
215-21 N. Wood St. CHICAGO Phone West 4918

ANY PART for
ANY CAR Send for Catalogue
NEW or
USED Cincinnati Auto Parts
& Wrecking Co.
712-714 Walnut St.
CINCINNATI, OHIO
Parts our middle name

FOR SALE—Front Wheel Brakes for any make car. Have about 80 sets and tools. Also patents. Chance for automobile mechanic. A Hubalek, 744 Willoughby Ave., Brooklyn, N. Y.

FOR SALE—Maximotor 4-cylinder Ball Bearing Crank Shaft 3 1/2 x 5. \$200. J. M. Herod, 4506 Forsyth Ave., East Chicago, Ind.

ADDRESS: FORD RIDEASY, 223 Grand Ave., W. Detroit, Michigan. Absolutely kills the chatter shocks and irons out the rocking rebounds.

FOR SALE—Disc wheels, new, fit all types cars, cost \$85. Price \$20 set. Mitchell, 421 W. 55th St., N. Y.

FOR SALE—Magneto's, Bosch, German; new, costing \$90. Sacrifice at \$15 each. Mitchell, 421 W. 55th St., N. Y.

BUSINESS OPPORTUNITIES

AN OPPORTUNITY TO BUY A PORTABLE ELECTRIC TOOL BUSINESS

from a company who manufacture a more complete line of portable electric drills, grinders, etc., than any one other concern in that line. Address

P. O. BOX 586, CINCINNATI, OHIO

FOR SALE—Twenty tons S. A. E. 1020 Round Piston Pin Steel 15/16 to 1 1/16 diameter \$30 ton. Write for sample. Fred S. Wolfe, Paris, Illinois.

INFORMATION

Six cents a word is the rate for all undisplayed advertisements set solid, regular want ad style; all capitals, 9c. a word; all capitals leaded, 12c. a word; minimum charge \$1 an insertion; payable in advance (see next paragraph).

Ten per cent discount if one payment is made in advance for four or more consecutive insertions. Advertisements other than "Positions Wanted" will be billed monthly if run more than four times.

Add five words for address if replies are to come to a box number address at any of our offices. These replies are forwarded each day as received, in new envelopes, at no extra charge.

Refund will be made if all insertions ordered are not needed, the amount refunded being the difference between cost of insertions given and full amount paid.

Telephone orders must be confirmed in writing same day. No allowances can be made for errors of any kind unless prompt notification is sent us.

When replying to blind ads be careful to put on your envelope the correct box number and do not enclose original letters of recommendation—send copies.

Displayed advertisements are sold by the inch. Rates will be furnished upon application.

The right is reserved to refuse any advertisement and also to rewrite and edit copy furnished whenever the publishers consider it advisable to do this.

THE BROADCASTER DEPARTMENT

THE CLASS JOURNAL COMPANY

239 W. 38th St., New York
5 S. Wabash Ave., Chicago

BUSINESS OPPORTUNITIES

FOR SALE—Prosperous Garage in brick building on Dixie Highway in Illinois, with Chevrolet Agency. 125 cars sold in last four months. Well equipped shop and fine sales room. Handle a full line of tires, oil and accessories. Room for 60 cars in storage. Good reasons for selling. Address Box 6172 care Motor Age, 5 S. Wabash Ave., Chicago, Illinois.

FOR SALE—Garage and Ford agency in Southwest, one hundred car contract, stock and equipment will invoice about \$15,000. Only three used cars, several of largest oil companies leading and drilling in neighborhood, only cash deal considered. Box 6174 care Motor Age, 5 S. Wabash, Chicago, Ill.

FOR SALE—An up-to-date Battery, Electrical Service Station and Accessory Store combined. Located on the Dixie Highway in a town of 12,000 population. Established in 1918 and doing a good volume of business. Owner's health reason for selling. Address all communications to H. W. S., No. 5 E. Main St., Troy, Ohio.

FOR SALE—Garage 32x60, on Yellow Stone Trail. No opposition. Authorized Ford and Chevrolet Station. Stock building tools, \$3500. Have other interests. Address Box 6175 care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

PATENTS and PATENT ATTORNEYS

PATENTS

BOOKLET FREE HIGHEST REFERENCES
PROMPTNESS ASSURED BEST RESULTS

Send drawing or model for examination
and report as to patentability

WATSON E. COLEMAN, Patent Lawyer
644 G. Street, N. W., Washington, D. C.

Attorney-at-Law and Solicitor of Patents

C. L. PARKER
Formerly Member Examining Corps, United
States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request.
McGill Building, WASHINGTON, D. C.

PATENTS

Secured, Trade-marks and Copyrights Registered

Prompt service, Highest references. Established 1864.
Milo B. Stevens & Co. Registered Patent Attorneys
Offices 639 F. St., Washington, D. C. 10 Monadnock
Block, Chicago, 341 Leader News Bldg., Cleveland, O.

AGENTS AND DISTRIBUTORS

EXCLUSIVE AGENTS: WE WANT AN AGENT IN EVERY TERRITORY TO SELL THE FAMOUS K-W ROAD SMOOTHERS, A COMBINED SHOCK ABSORBER AND SNUBBER FOR FORD CARS. SET OF FOUR SELLS TO CAR OWNER FOR \$20.00. WILL MAKE ARRANGEMENTS WITH RIGHT PARTY FOR EXCLUSIVE TERRITORY TO SELL FORD OWNERS, DEALERS AND GARAGES. SEND FOR LITERATURE AND WRITE US ALL ABOUT YOURSELF. THE K-W IGNITION CORPORATION, DEPARTMENT "B", CLEVELAND, OHIO.

AUTOMOBILE AGENTS WANTED
AS
GENCO LIGHT DEALERS

Live and aggressive men wanted to sell GENCO LIGHT PLANTS. Our Co-operative Sales Plan endorsed by the leading Granges. Places three plants in each Township Free. General Gas Electric Co., 100 E. Middle St., Hanover, Pa.

RADIASHIELD—\$10

The greatest of Metal Radiator Fronts

Rated Distributors and Distributing Salesmen wanted in every section. A year's income for three months' work.

RADIASHIELD, INC.
30 Church St., New York

DISTRIBUTORS WANTED—Wonderful Vapor Humidifier and gas saver will increase mileage of auto, truck or tractor. 200% profits. Exclusive agent with car wanted in each county for demonstrating. Progressive repair shops and service stations acceptable as agencies. W. G. Critchlow, Box 427, Wheaton, Ill.

HELP WANTED

WANTED—FOUR EXECUTIVE SALESMEN

Only men trained in automotive merchandising considered. A legitimate proposition that calls for work among leading jobbers and dealers. A money-making opportunity for the right man. Write or wire The Bonham Engineering Company, Oxford, Ohio, giving full details.

SALESMEN calling on garages can get exclusive territory on new labor and time saver and other garage equipment. Liberal commissions. Full or part time. Products not competitive. Box 446, Aurora, Illinois.

MISCELLANEOUS

MORGANTOWN, W. VA.

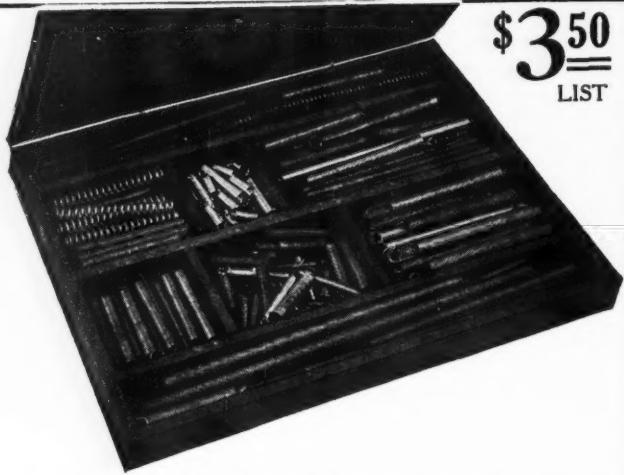
situated in the heart of the greatest High Volatile Coal Field in the world wants industries. Will co-operate with the manufacturer. Has Natural Gas, low power rates and exceptionally favorable shipping facilities.

For information address

ASSOCIATED INDUSTRIES CO.
Box 775, Morgantown, W. Va.

WANTED—List and attractive prices on overstock of Ford parts and anything in accessory line. We have overstocks. Write for our list. East Texas Auto Supply Co., Tyler, Texas.

Be ready for any spring job



\$3.50
LIST

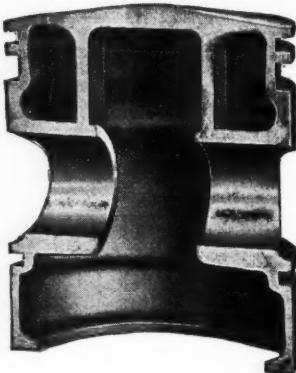
Don't bother to send away for a "spring at a time". Have the right spring for the job handy when you need it. The PECK Garage Assortment keeps you always "in stock" and earns good profit besides.

Springs are conveniently arranged in strong partitioned box, \$3.50 complete. Mention Jobber's name for discount. The Peck Spring Co., Plainville, Conn.

PECK GARAGE ASSORTMENT

Aluminite Pistons

Wear five times longer than die-cast pistons. They will not score, pump oil or slap. These Ribs carry heat away and prevent preignition. In use in 90 per cent of the successful racing motors. Weigh only one-third that of cast iron. Make a good four perform like a six. The result of nine years of successful operation. Used by winner of Pikes Peak Race. A combination of right alloy and right design. The one great replacement for all makes of cars. We also make Aluminite connecting rods. Special prices.



High Speed Camshafts

Replacement for all makes of cars. Permit higher speeds and give any motor more power. Tests prove this. A quality replacement at a low price. Replacement list, prices and discounts sent on request.

GREEN
ENGINEERING CO.
DAYTON, OHIO

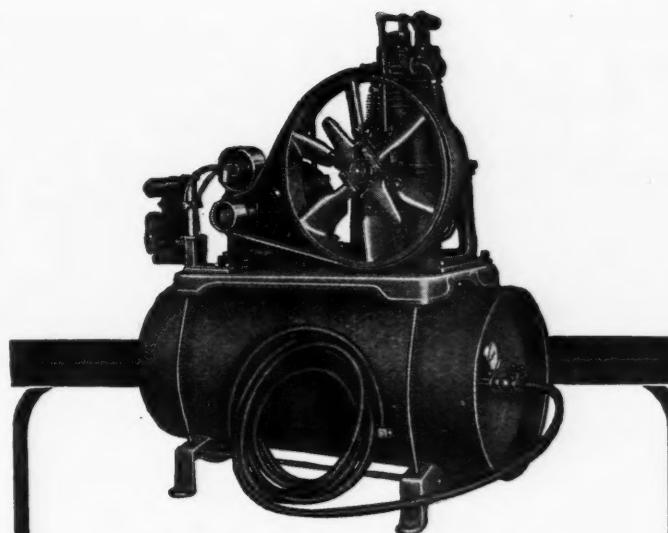
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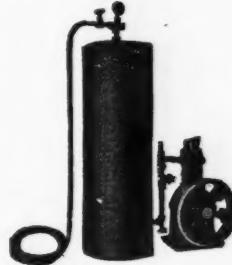


Real Air Service in This Curtis

THE above illustration is the Curtis Style TV Two-stage Outfit—one of the family of popular Curtis Outfits—the last thing in air compressor design—free of complicated parts—built for hard usage and will be on the job all the time. $\frac{1}{4}$ to 3 H.P.—automatic.

Single and Two-stage Many Sizes and Styles

We manufacture a complete line of single and two-stage outfits. You are sure to find one that will meet your particular needs in style, size and price. Write at once for full information and descriptive literature. Use the coupon below, or a postcard will do.



Style "S" Single Stage Outfit. Belted only. Five sizes— $\frac{1}{4}$ to 3 H.P. motor required.

CURTIS PNEUMATIC MACHINERY CO.
1527 Kienlen Ave. • • • St. Louis, Mo.

Branch Office:

530-H Hudson Terminal • New York City



USE THIS

AIR COMPRESSORS-HOISTS-TROLLEYS-CRANES

COUPON

CURTIS PNEUMATIC
MACHINERY CO.

1527 Kienlen Ave.,
St. Louis, Mo.

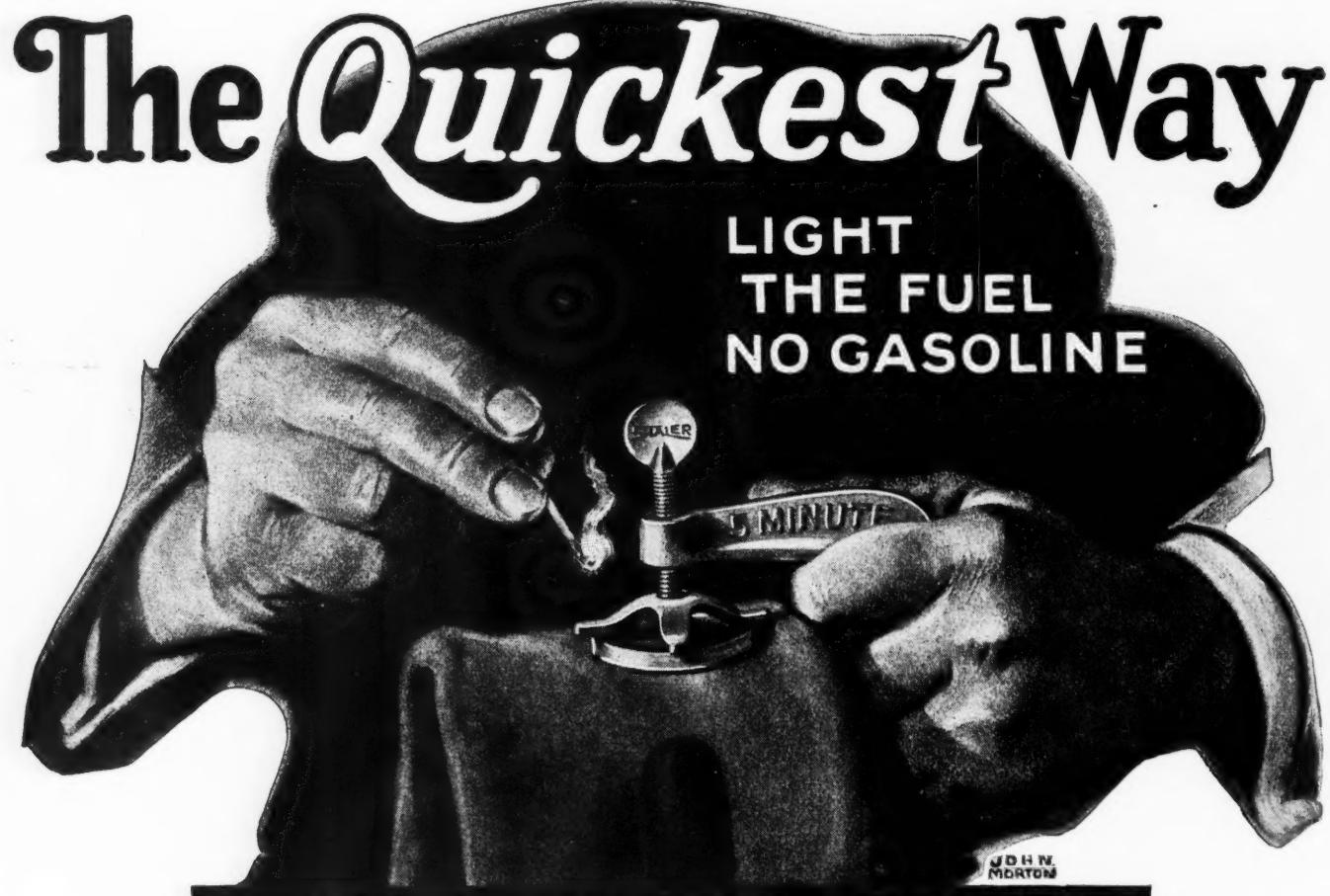
Gentlemen: Please send me full details on Curtis Air Compressors—your proposition and prices.

Name.....

Address.....

Jobber's Name.....

Address.....



LIGHT
THE FUEL
NO GASOLINE

W.D.H. MORTON

To Repair Punctures—

Every Sale Brings a "Repeat"

When you sell a Shaler Vulcanizer that's not the end of it, as with most accessories. Every one of them you sell makes a repeat customer for Shaler Patch-&-Heat Units to use with it.

The Shaler is so well advertised that you only need to show it to sell it.

More than two million motorists who use the Shaler 5-Minute Vulcanizer know why it is the *quickest* way to fix punctures. The Shaler Patch-&-Heat Unit is the secret. It is a little tin pan with a piece of raw rubber on the bottom and containing a disc of prepared solid fuel that gives just the right amount of heat to cure the patch.

To mend a puncture the motorist clamps one of these Units over it, lights the fuel, and waits five minutes. That's all there is to it. He gets a regular tire repair shop vulcanized repair—out on the road—*quicker* and *easier* than sticking on patches that soon loosen and come off. No gasoline, no shears or knife to cut a patch to fit, not even cement.

Order from any Jobber—

They all carry the Shaler—and don't forget to ask for our FREE Window Display.

C. A. SHALER CO., 215 Fourth St., Waupun, Wis.

SHALER
5 MINUTE VULCANIZER

BOSCH

Type 600 Ignition

for

FORDS



Everybody is Putting *this* Bosch System on Fords

Thousands are being sold every week—

Live dealers everywhere are rapidly turning over their stocks—and making big profits.

Type 600 is easy to sell, easy to install and a wonderful trade-builder. It's the biggest value ever offered Ford owners—a complete, high quality ignition system, built by the makers of the world famous Bosch Magneto.

It prevents all ignition troubles—makes a sure - firing, smooth - running, powerful,

"peppy" engine—and it will outlive the car.

Half of all the motorists in your town own Fords. Get a few of them to use Type 600 Ignition, and the others will quickly follow. It will be a regular landslide! You'll have the Ford trade—and a record year in sales.

Wire for sample fitting C. O. D. and full particulars about new sales plan.

AMERICAN BOSCH MAGNETO CORP.

SPRINGFIELD, MASS.

New York

Detroit

Chicago

San Francisco

\$ 12 75

In Canada \$19.00

AMERICAN BOSCH MAGNETO CORPORATION

Everybody is Putting Bosch Ignition on Fords—we do it here

REPUBLIC HAS MORE TRUCKS IN USE
THAN ANY OTHER EXCLUSIVE TRUCK BUILDER



The truck Fleet of the World

REPUBLIC
YELLOW CHASSIS
TRUCKS

REPUBLIC MOTOR TRUCK CO., INC., ALMA, MICHIGAN

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